The Chemical Age

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The Duty of the Citizen

AT the time of going to press no irrevocable step had been taken in the international crisis. The position was still extremely grave, but each day snatched from the jaws of catastrophe was thankfully credited to the account of sanity and peace-making. The position between the emergency meetings of Parliament last week and this was, in the words of the Prime Minister, that there had been little change in the main features of the situation. The catastrophe, as he said last week, was not yet on us, but he could not say that the danger of it had yet in any way receded.

Through all these anxious days the fine temper and steady purpose of the business community persisted. Mr. Chamberlain has the backing of a united nation to a degree never given before to a British Prime Minister. He, his Government and the nation have won the first round of their unexampled ordeal by proving beyond any question that the so-called war of nerves launched against them has completely failed in its purpose. Clear recognition of that was shown by Herr Hitler's week-end negotiations through Sir Nevile Henderson with the British Government.

This phase is an illustration of the most extraordinary feature of the present crisis. It has not gone according to plan and it has been almost invariably the unexpected that has happened. It would accordingly be rash indeed to attempt to forecast the future course of events. What is clear is that every agency that makes for peace is pulling its weight as never before. It must be peace with honour, but within that formula, the implications of which are fully known to the world in general and the German Government in particular, the Prime Minister's efforts to avert war have the whole-hearted assent of the nation, and more particularly of its industrial and commercial backbone.

If war should unhappily come, every citizen could be depended upon implicitly to do his duty. So far as the great business and manufacturing interests are concerned, that duty will be to hold fast and get on with the job until further notice. It is perhaps inevitable that men and women, even though nurtured in such an atmosphere as that of British liberty, should be to some extent bound by the fashions and conventions of the moment. In times such as the present it is more than usually difficult to swim against the tide or to show individuality of thought. The present generation lives in a world which gives its own values to phrases and slogans irrespective of their literal meaning. An example of its temporary aberration is the taboo upon the word appeasement.

In such a world it may seem unprofitable to utter the old cry "Business as Usual." Recollections, at least, can be placed on record. In August, 1914, "Business as Usual" brought salvation to the British nation. It kept it steady, averted panic and proved to be the embodiment of wisdom. It is true that later the slogan was abandoned, but the idea underlying it was never given up. Nothing has been more reassuring in the present situation than the complete avoidance of panic, but it has only been by way of a moderate brake or check upon the twentieth century rush to do everything in some unusual manner. There is a serious risk of forgetting the vital necessity of maintaining as much as possible of the economic fabric of the country. Business men do not need to be told how much time and labour were given to the weaving of that fabric. It is the product of the work of generations. It would be possible to destroy it in a few seconds, but it could only be remade by the processes which originally brought it into being.

That being so, the duty of the patriotic citizen is clear. Wherever his special experience and qualifications fit him for some piece of national work definitely connected with the conduct of war, he is bound to abandon whatever may be his peace-time business and place himself at the service of the nation. But unless some such opening arises or can be made, he should refrain from rushing into every bureaucratic device for organising and controlling essential activities which are far better understood by those outside the official machine. The more the average Briton is left in complete freedom to perform the service to which he has given the study of a lifetime, the stronger will be the combined national effort. Nobody disputes the need of restrictions in time of war, but it is imperative that they should be limited to the actual need of foiling the enemy and not extended in such a way as to throttle the initiative and enterprise of the individual, whose patriotism will blossom with the encouragement he receives to take his share of responsibility for thought and action.

> *"In our time, as in the past, each industrial advance shows more clearly the essential character of chemicals in industry. To-day they not only make possible the more efficient transformation of natural products into consumers' goods, but supplement these products with synthetic materials which are so widely extending the frontiers of the chemical industry. The industry is fundamentally creative and ever on the threshold of a greater to-morrow."*
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> —*Edgar M. Queeny.*

NOTES AND COMMENTS

Accident Prevention in Industry

THE annual report of the Chief Inspector of Factories for 1938 not only shows that there has been a distinct decrease in the number of reportable accidents during the past year, as opposed to increases during the previous two years, but also that there are many indications of increasing interest in accident prevention generally, the number of works having safety committees increasing from 1,246 in October, 1937, to 1,449 in December, 1938. The report gives an interesting review of the organised efforts to reduce accidents which have been made in recent years. It points out that while it is true that the safety committee is probably the most effective way of combating accident incidence in large works, it is not the only or sometimes even the most appropriate way. Much can be done in many works, it is emphasised, by the appointment of a safety officer whose duty it is to see that fencing and other safeguards are properly maintained, and to devote special attention to the prevention of accidents in other ways. Another system of great value consists of special joint committees which cover the whole of a particular industry. Meetings are held periodically, at which serious accidents which have occurred since the previous meeting, and the steps to prevent repetition, are discussed. Another method is the promotion of safety committees for particular areas, either to deal with special purposes, or to cover industry generally. Accident prevention largely through propaganda and education is the special concern of the National Safety First Council and the Industrial Welfare Society, and has received the attention of certain insurance companies. Finally, the report states that research on the personal factors underlying the problem has been conducted under the Industrial Research Board, and that while the results of this research are hardly yet ripe for practical application, they indicate the future possibilty of yet another potent method of prevention.

Guarantees of Fertiliser Composition

ATTENTION is usefully drawn to an undesirable practice in the guarantees of composition required by the Fertilisers and Feeding Stuffs Act by Mr. H. E. Monk, Worcestershire county analyst and bacteriologist, in his annual report. He says that it may be thought that a failure to give the statutory guarantee, or giving it in terms other than those required by the Act, amounts to no more than a technical offence. However, he believes that this is not so, at least in the majority of cases. Persons whose business it is to sell fertilisers and feeding stuffs are no doubt more familiar than anyone with the requirements of the Act. It is also true that most of the unsatisfactory guarantees are of the same kind. In the case of phosphatic fertilisers " phosphates " are guaranteed instead of phosphoric acid, and in the case of nitrogenous fertilisers " ammonia " instead of nitrogen. Since 10 per cent. of phosphoric acid is the same thing as 21.8 per cent. of " phosphates " and 10 per cent. of nitrogen the same thing as 12.1 per cent. of ammonia it will be seen that this kind of evasion of the Act gives the seller larger percentages to put down on his guarantee. This is particularly so in the case of " phosphates." Mr. Monk believes that not all farmers are sufficiently versed in chemistry to watch out for and appreciate these distinctions when buying fertilisers, and that these practices will continue until a prosecution is brought as a warning to vendors.

Industrial Raw Material Supplies

SOURCES of supply of the United Kingdom's requirements of industrial raw materials and foodstuffs are reviewed in the current issue of the *Bulletin of the Royal Institute of International Affairs*, and it is concluded that it should be possible to draw sufficient quantities of all but a very few commodities from the countries bordering on the Atlantic. A summary of the position contains the following remarks regarding the supply of raw materials: France should be able to supply potash, bauxite, some iron ore, and perhaps phosphates (from North Africa). Africa could provide vegetable oils (West Africa), copper (Northern Rhodesia Belgian Congo), manganese (Gold Coast), chrome ore and asbestos (Southern Rhodesia), and vanadium (South-West Africa or Northern Rhodesia). Brazil and Central America have plentiful bauxite (British and Dutch Guiana), oil (particularly Venezuela and Mexico), and lead, zinc, and antimony (Mexico). The United States is the United Kingdom's great source of supply for cotton and tobacco, while her oil, sulphur, phosphates, and molybdenum might also be important. Canada's many assets include timber, asbestos, copper, lead, zinc, nickel, and aluminium (smelted from imported ore). It would also be important, yet perhaps difficult, to acquire iron ore from Sweden or Spain, pyrites from Spain or Norway, and mercury from Spain. The only industrial commodities whose import from beyond the Atlantic appears to be essential are rubber (Malaya, Netherlands East Indies or Ceylon), and tungsten (Burma, Malaya or China).

Exhibits at the New York Exposition

ADVANCE information which has been issued concerning the Seventeenth Exposition of Chemical Industries, which is to be held in New York in December, gives details of some of the interesting exhibits which it is intended to show. One exhibitor will feature hydroxylamine hydrochloride of purity 98 per cent. or over; this type of chemical is representative of a group which in the past has been largely imported or difficult to find in the American market. Other reagents shown by the same exhibitor will include phenylhydrazine hydrochloride, dimethyl glyoxime, hydroxylamine sulphate, semicarbazide hydrochloride, phenylmethyl pyrazalone, butyl bromide, and hydrazine sulphate. A total of 29 gases will be demonstrated by one exhibitor, also cylinders, valves, gauges, and controls for handling them in the laboratory. Glycerine as a basic chemical raw material will be exhibited in terms of its many applications in the manufacture of foods, cosmetics, pharmaceuticals, textiles, rubber, leather goods and plastics. The same display will illustrate sources of fats and oils used in the manufacture of soap. Diatomaceous earth products will be shown as filter aids and as raw materials used as fillers and extenders in the manufacture of paper, rubber, plastics, oil and water paints, and varnishes. Containers and packaging machinery will be unusually well represented this year.

Plant Equipment

PLANT equipment designed for carrying out all the unit processes of chemical engineering efficiently and economically will constitute a large section of the Exposition. The display will include electro-magnetic vibrators, vibratory feeder conveyors, volumetric feeder machines, and weigh feeder machine equipment. A counter current rapid batch mixer will feature a modern mechanical

method for scientifically blending, mixing, and compounding difficult formulæ of dry, damp, or slurry consistencies. Filtration will be demonstrated by many operating models; one filter is said to offer a unique method for building a filter medium or "precoat" and discharging the cake. One filter manufacturer will feature continuous rotary models, also plate pressure units. Related to filtration and the chemical engineering processes having to do with the flow of fluids will be the operating exhibits of pumps of many kinds which will be shown at the Exposition. Motor driven, high pressure, reciprocating chemical pumps will feature double, integral, ball check on both suction and discharge. The range of pump exhibits shown by one manufacturer will include those capable of capacities from one gallon per hour to five gallons per minute against pressures from 0 to 15,000 lb. The range is manufactured in several corrosion resistant metals and can be used under severe service conditions. Featured in the pump exhibits this year, will be an entirely new kind of pump offering the mechancal advantages of metal and the chemical advantages of glass. The interior of the new glass pump allows the material flowing within it to be examined at all times. The capacity of the standard unit, with balanced impeller rotating at 1,760 r.p.m., is 6,000 gallons of acid or other liquid per hour.

Defence in Industry

IN the last few days a number of documents have been issued of importance to owners and occupiers of industrial and commercial premises affected by the Civil Defence Act. Two of these documents are respectively the " Revised Code of Air Raid Shelters for Persons Working in Factories, Mines, and Commercial Buildings," and the Revised List of Specified Areas under the Act (Civil Defence (Specified Areas) Order, 1939). There have also been issued Regulations for the claiming of the grant which is payable in respect of capital expenditure on shelters completed, or in respect of preparatory measures which shall have been taken to the satisfaction of the Minister, by September 30. There have also been issued the Rules governing the exemption from building byelaws in respect of certain buildings constructed for Civil Defence purposes, and the Regulations referring to Sections 22 and 38 of the Civil Defence Act, establishing " reasonable expenditure " on shelter in respect of which grant will be payable. The documents can be obtained from the Stationery Office, or through any bookseller.

" The Chemical Age " Lawn Tennis Tournament

THE finals of the ninth annual CHEMICAL AGE Lawn Tennis Tournament will be held at the Blue Circle Sports Club Ground, Woodford Road, Snaresbrook, near Wanstead, on Saturday, September 16, by kind invitation of the Associated Portland Cement Manufacturers, Ltd. Play will commence at 2.30 p.m. Full particulars of the arrangements, including travelling facilities, will be published in next week's issue. A number of invitations have been sent out, and other members of the chemical industry wishing to attend should apply for tickets as soon as possible. Applications should be addressed to the Editor, THE CHEMICAL AGE, Bouverie House, 154 Fleet Street, E.C.4.

Researches on Colour

Salts of Diphenylvioluric Acid—New Dyestuffs Derived from Chrysoquinone

INVESTIGATIONS on the cause of colour of the organic and inorganic salts of diphenylvioluric acid carried out at Allahabad University have revealed a relation with their chemical constitutions. From a study of the absorption spectra and hydrolysis constants of the inorganic and organic salts, the intensity of the colour of the salts has been found to be proportional to the strength of the basic character of the base, as previously found in the case of the corresponding salts of violuric acid. Further study of the absorption spectra of the salts of the newly synthesised higher homologues and analogues of diphenylvioluric acid indicates that the effect of additional load on the molecule of the substance is to produce still further intensification of colour as expected from theoretical considerations, the greater effect being produced by substituents in meta positions followed by those in the para.

From chrysene, via quinone, chrysoquinone, new dyestuffs by condensation with aromatic amines and diamines have been prepared. Interesting aniline compounds have also been obtained from chrysoquinone possessing good tinctorial properties by treatment of the substance with bromine under various conditions, followed by aniline in presence of copper powder. The dyestuffs obtained in this way dye cotton and wool both from the hydrosulphite vat as well as from an acid bath in various shades ranging from yellow to reddish violet. The shades thus obtained are fast to light and washing.

A New Indicator

Isonitroso-diphenyl-thio-barbituric acid has been prepared for the first time by the action of nitrous acid on 1 :3-diphenyl-thio-barbituric acid, prepared in its turn by the action of diphenylthiourea on malonic acid in presence of acetyl chloride. As the transition of colour on treatment with alkalies or organic bases is strong and sharp, it may be used as an excellent indicator. The change of colour from orange to blue or green has been shown from theoretical considerations to be due to a fundamental change in the constitution of molecule from an oximino-ketonic to a nitroso-enolic structure.

Further work in the laboratory of Allahabad University has shown that the fluorescence of organic compounds is mainly due to impurities, and well known fluorescent substances of the type, quinine, resacetophenone, anthracene, etc., lose their fluorescence completely on exhaustive purification.

Letters to the Editor

Cement Works Conditions

SIR,—I am interested in the extract, given in your last issue (page 159), of the Alkali Inspector's current report referring to cement works conditions.

It is no doubt possible for objectionable smells to emanate from cement works, although this is unusual, but if hydrogen sulphide is the cause, I am certain that this cannot result from combustion conditions in a rotary kiln in any circumstances. A small amount of sulphur dioxide derived from the sulphur in the coal, is always present, and, of course, this cannot co-exist with hydrogen sulphide.

The natural raw materials of cement manufacture are such that hydrogen sulphide or other objectionable odours are unlikely to result from their partial decomposition, though the trouble is perhaps more likely to occur where by-product raw materials are used in the manufacture.—Yours faithfully,

W. EDMUND EVANS.

14 Old Queen Street,
Westminster, S.W.1. August 29.

INDUSTRIAL HEALTH AND SAFETY

Decrease of Accidents in 1938 shown by Annual Report of Chief Inspector of Factories

IN welcome contrast to the last two years, there has been a distinct decrease in the number of reportable accidents, amounting in the case of all places under the Act to 6 per cent. for total and 7 per cent. for fatal accidents, while for manufacturing industries alone these decreases extended to 10 per cent. and 12½ per cent. respectively, states the annual report of the Chief Inspector of Factories for 1938. It is true that this general decrease must be due to some extent to the fewer numbers in employment, especially since, as has been shown, an increase or decrease in numbers employed is accompanied by a relatively greater increase or decrease in the number of accidents. Nevertheless, the fact that this decrease is especially marked among fatal accidents on factory premises encourages the hope that the safety requirements of the new Act, which are specially aimed at the prevention of the severe type of injury, have already begun to take effect. This view is supported by the fact that the diminution in the number of accidents due to over-running of or crushing by overhead cranes and those occurring on hoists and lifts (two causes for which special provision has been made for the first time) amounted to as much as 30 per cent. and 20 per cent. respectively. It is clear, however, that there is still room for a far bigger reduction in industries generally and that this should be quickly attained by the exercise of greater care and more thought on the part of those concerned.

Accidents Among Young Workers

The new Act may. it is hoped, have a marked effect on reducing the number of accidents (especially those of the more severe type) among young workers. In past factory legislation the special protection of young workers has been almost wholly confined to ensuring that they did not work excessive hours, that on entry into industry they were medically fit for the work on which they were to be engaged, and that they were not exposed to certain conditions likely to be injurious to health. In regard to safety, the only provisions against risk of accident to them (apart, of course, from those relating to all workers) was a prohibition against allowing young workers under 18 (as well as women) to clean dangerous parts of machinery in motion.

This situation is greatly altered by the new Factories Act, 1937. In the first place, the requirement as to cleaning of machinery has been strengthened and made more precise. Secondly (under Section 21), no worker under 18 may operate certain machines prescribed by the Secretary of State, unless he has been instructed as to the dangers to be avoided, and is kept under close supervision by an appropriate person, until sufficiently trained. Lastly (under Section 56), a worker under 18 may not be employed to lift, carry or move any load so heavy as to be likely to cause injury.

Hoists and Lifts

The Factories Act now, for the first time, prescribes definite standards to be observed in the safeguarding of hoists and lifts. These standards, while being in accordance with the best modern practice of hoist makers, are considerably in advance of what has formerly sufficed to comply with the law and, it must be recognised, have entailed heavy expenditure for many occupiers of factories. The provision of cage gates with mid-bars for hoists in which persons ride, and interlocking devices for these and landing gates, will undoubtedly prevent many of the distressing accidents to young boys and girls which are all too common at present.

Considerable progress has also been made in complying with the requirements applicable to chains, cranes and lifting tackle. That there was a real need for more rigorous supervision of appliances of this kind is indicated by figures received from one firm of inspecting engineers. These show that of 617 cranes of all types examined, 22 per cent. were in a dangerous condition, and a further 27 per cent. required substantial repair: for chain blocks the figures were 48 per cent. and 28 per cent. respectively.

Several serious accidents, some fatal, have again been caused by the explosion of tanks, drums and similar closed vessels which have contained carbide, petrol or other inflammable liquids, during repair work involving the use of heat. The Factories Act now requires all practical steps to be taken to remove or render harmless any such liquid or fume remaining in the vessel before heat is applied, and the precautions necessary are dealt with in an official memorandum which is on sale. It is impossible to lay too much stress on the importance of these precautions, particularly as there is a widespread impression that ignition is unlikely if a soldering iron only is used.

The numbers of cases of lead poisoning notified in 1938 decreased beyond expectation and, whereas in 1900 the number was well over a thousand, it is now for the first time under one hundred. The number of cases in the manufacture of white lead, though only seven, is greater than for many years. Five of the cases occurred at one factory where this manufacture by a new process had only recently been started, an example of the view expressed last year that an increase of cases is to be anticipated when the use of lead is extended or used in a new process.

Cases of poisoning in the pottery industry are few and the tile industry which in the last few years accounted for the majority, contributed three. This decrease is mainly due to the substitution of a low solubility glaze for raw lead glaze. It speaks well for the industry that they have made such good progress towards solving a difficult problem.

Cases of Poisoning

One case of mercurial poisoning occurred in the manufacture of thermometers, and another in the manufacture of electric meters. There were three cases of arsenical poisoning, in all of which dermatitis was present in addition to the gastro-intestinal symptoms. One of the cases occurred in the manufacture of an insecticide which contained calcium arsenate and the other two in the manufacture of sheep dip containing sodium arsenite.

Four of the reported cases of aniline poisoning were more than usually severe, necessitating absence from work for two to three weeks or more, aniline oil being responsible for two, vapour of para-nitro-chlor-benzol for the third and para-toluidine for the fourth. In the latter case the methæmoglobinæmia called for a blood transfusion. The remaining five cases included under this heading were due to trinitrotoluol. They occurred at a shell-filling factory and were slight and transitory.

Arseniuretted hydrogen in a chemical works where the gas was evolved from acidified residues of cadmium was responsible for three cases of toxic jaundice. Three fatal cases of jaundice were investigated in which there was exposure in varying degree to fume from a chlorinated naphthalene wax. One of the cases occurred in a boy aged 16 who had worked for 3¾ months in a department of an optical works. A yellowish tinge about the eyes was detected some three weeks before the fatal issue and it was stated that he had on the face and arms what is now known as a "wax rash." A Wassermann test made in hospital during the two days before his death was weakly positive. The boy's exposure to fume from chlorinated naphthalene wax was from the heating of large quantities of wax in an open vessel.

Several workers in the same department had a well marked "wax rash," but so far as could be ascertained no other case of jaundice had occurred.

There was an increase in the number of notified cases of chrome ulceration from 101 last year to 115 this year. While chromium plating still provides the largest number of cases, the main increase was in connection with the process of anodic oxidation which provided 20 as compared with 5 last year. There is apparently a growing tendency, largely as a result of increased aircraft production, to make anodising baths larger and especially wider, thus tending to make more difficult the problem of adequate localised ventilation and, at one factory, the only practical solution of the difficulty was found to lie in keeping the baths covered while the current was on in addition to maintaining the usual lateral exhaust ventilation.

Cases in the Manufacture of Chrome Products

The manufacture of chrome products which in recent years, compared with the early years of notification, has provided so few cases, was however responsible this year for 15 cases all of which occurred at one factory where the welfare facilities were good, although there was some deterioration in the plant. New methods of crystallisation to obviate handling were considered and a fortnightly instead of a monthly medical examination of the workers was instituted.

Five further cases of papilloma of the bladder in workers engaged in synthetic dye manufacture came to the knowledge of the department. In each case the papilloma became malignant. The age at death varied from 38 to 75 years and the duration of employment in the works from 8 to over 40 years before recognition of the disease. As usual the majority had come into contact with more than one dyestuff intermediate, but three were known to have had substantial contact with beta-naphthylamine. In two cases no contact with this chemical could be elicited, both men being employed mainly, if not solely, in the manufacture of auramines which involved contact with various intermediates derived from dimethylaniline. The onset of the disease in all cases occurred prior to 1938, and, in one case, as early as 1931. The scheme of careful medical supervision of the workers now adopted by the employers should enable cases of papilloma of the bladder to be detected at an early stage.

Again, as last year, there is a further increase in the number of reported cases of gassing due to carbon monoxide, especially from power gas and gas other than blast furnace or coal gas. Four cases of sulphur dioxide gassing occurred during the melting of sulphur in a ladle, repair of a refrigerating coil, removal of residual liquid from a compressor and cleaning out of an acid tank through which sulphur dioxide had been passed.

The risk due to the evolution of nitrous fumes when metal is heated to a high temperature in the presence of air was again illustrated during the year. Three ammonia gassing cases were due to escape from a refrigerator plant and one from cleaning out a pipe from a sulphate of ammonia plant.

Miscellaneous Cases of Gassing

One case of trichlorethylene gassing was due to escape from a dry cleaning plant and two from a metal degreasing plant, in one of which an exceptionally large tank was in use. The one case of phosgene gassing reported was probably due to formation of phosgene, while a fire was being extinguished with a patent extinguisher. Other reported cases of gassing were due to escape of thionyl chloride (3), and of bromine fumes while siphoning liquid bromine into ammonia, benzyl chloride, acetylene from a blow pipe, butane from a cylinder, sulphuryl chloride from a tank in the process of making woollen fabric unshrinkable, and acrolein fumes, one each.

The number of voluntarily reported cases of dermatitis still continues to increase, as there are 2,195 compared with 1,985 cases in 1937. The list of causative agents appears to be unlimited and new items have to be added to the list each year. Such a one is ultramarine to which two cases were attributed during the year. It is interesting to note that in each case the length of exposure was four years and as ultramarine had been handled by a large number of workers without noticeable effects, the susceptibility cannot be considered as widespread.

Apart from adopting the usual preventive measures of the substitution of an innocuous product where practicable, cleanliness and, in some cases, ventilation, the important point is to protect the skin in one way or another. Protective clothing, if suitable, plays an important part in prevention of dermatitis, otherwise it may prove a danger. The experimental work on the production of a satisfactory "barrier substance" to which reference was made last year, is not yet completed. At the present time a suitable preparation which is thought to be satisfactory has been found, but is being put to further practical tests in various factories before issuing the prescription, as it may well be that some slight modification in composition may be called for as a result of the tests.

Synthetic and By-Product Nitrogen

German Production and Sales Increasing

ACCORDING to the American Consulate General, Frankfort-on-Main, the German Ammonia Sales Association, Ltd., in which the synthetic and by-product nitrogen output of the Ruhr district is incorporated, recently reported total sales of nitrogen by the German Nitrogen Syndicate in the domestic market (excluding Austria) in the business year 1937-38 amounted to 611,071 metric tons N, a gain of 11 per cent. over the preceding year. Under the influence of especially favourable market conditions, the Syndicate's export sales increased 12 per cent. compared with 1936-37. While continued gains in domestic sales are expected for 1938-39, a decrease in exports is indicated by available export statistics.

Sales by the Ruhr synthetic plants, after recording a gain from 53,802 tons N in 1935-36 to 63,113 in 1936-37, fell off in 1937-38 to 61,440 metric tons. The reduced output by Ruhr synthetic plants was due largely to the conversion of an important producing plant from the manufacture of nitrogen to the production of synthetic gasoline, coupled with special circumstances temporarily reducing output available for delivery. As in the past, the main product produced by the Ruhr synthetic plants was ammonium sulphate-nitrate followed by calcium carbonate-ammonium nitrate. Both of these types of fertiliser showed expanded sales and gains in their sale are expected to continue in the future. Considerable gains were recorded in sales of nitrogenous products for technical purposes in 1937-38, and the participation of the Ruhr synthetic producers in this trade amounted to 7,731 metric tons, N, compared with 6,177 tons in the preceding year. The increase was due in about equal parts to aqua ammonia and ammonium nitrate; there were only negligible changes in sales of other products.

Sales of by-product ammonium sulphate by Ruhr coke-oven operators, organised in the "Coke-Oven Association," affiliated with the above mentioned "German Ammonia Sales Association," increased in 1937-38 to 103,518 tons N as compared with 98,555 in the previous year, and 84,341 metric tons N in 1935-36.

For the first time in 1937-38, plants producing synthetic gasoline from coal furnished an output of ammonium sulphate, producing the small amount of 503 metric tons N included in the total figure of 103,518 tons N given in the above figure. The Ruhr synthetic gasoline plants were incorporated within the Coke Oven Association and a production quota allotted to them corresponding to their actual output of ammonium sulphate.

Oil Expressing

Effect of Heating the Oilseeds

IN a series of three articles in *Seifensieder Zeitung* (1939, *66*. 545-6, 565-7, 585-6), M. Singer discusses the effect of heating oilseeds on oil production by pressing, based largely on the latest Russian practice and work at the All-Russian Scientific Research Institute for Vegetable Oils, with particular reference to the methods introduced by A. Skipin and W. Iljin. Other factors besides heating are also considered, namely, moisture and time. Since reference is frequently made to the material as being ground or disintegrated, the nature and extent of such disintegration should probably be regarded as a fourth factor, but this is outside the present scope.

Amount of Water Present or Added

The effect of water present and added has not yet been fully explained, but a brief survey is given of recent theories, including those of P. A. Rehbinder and Goldowski, and a reference to the views of Heublum and Japhé in their "Moderne Oelgewinnung," published in 1936. These relate mainly to colloidal principles of surface tension, selective wetting, effect of surface-active substances, wetting inversion, etc., and the influence of all these on oil yield. The optimum amount of water present in the warmed material varies with the kind of seed, but should not usually exceed 14-18 per cent., and this will have to be reduced by drying before going to the presses or expellers. Also a preliminary drying before the seed is ground up or disintegrated is often necessary. On the other hand it may sometimes be desirable to add water by spraying or by blowing in wet steam.

Various methods of heating are described. Indirect or direct steam heating is the most usual, and the time required varies with the kind of seed. Cottonseed, for example, must be quickly dealt with, in 10-15 minutes, while other material such as linseed or sunflower seed may take 50-90 minutes, and the temperature also varies. According to Iljin it is, with linseed, 81°-85° with a moisture content of 8.75 to 9.25 per cent. H. Lemmel considers 70° high enough, while Heublum and Japhé recommend 101°-106° for seeds with less than 11 per cent. moisture for a duration of 74-91 minutes until the final moisture content is 4.31-6.61 per cent. These figures hold largely in Eastern and South-Eastern Europe for sunflower seed, except that the temperature is lower at 75°-80°.

Skipin and Iljins' Recent Methods

Skipin and Iljin have recently introduced methods which differ from the usual, as noted above. Briefly, Skipin's method consists in a preliminary wetting of the seed, say, up to 8.5 per cent. moisture content, and then moderate heating, up to 25°-30°—although up to 90° was subsequently recommended—and removal of the oil thus set free before passing the material to the presses. Prior to this latter stage it has been dried down to a moisture content of about 3-4 per cent. in the case of sunflower seed. The three stages in the process: preliminary wetting, removal of free oil, and drying prior to pressing, vary according to the kind of seed which Skipin divides into three groups. In his latest design the moisture content of the first stage is increased considerably beyond the 8-9 per cent. first suggested. Group (1) sunflower and castor seeds, initial moisture 11-20 per cent., temperature of heating 85°; Group (2) cottonseed, hempseed, moisture 14-20 per cent., temperature 68°-72°; Group (3) groundnuts, sesame seed, moisture 16-20 per cent., temperature 35°-37°. The first two stages of the process are operated in a separate apparatus, with perforated bottom through which the free oil flows (40-50 per cent. of total) and is heated with indirect steam. The material after about 25-35 minutes is passed to the drier and its moisture reduced to the right degree for the presses.

In the Iljin process the material dried down to 4-5 per cent. moisture is spread out in thin layers and treated for two minutes with saturated steam. The condensation water is strongly absorbed by the well dried and disintegrated seed, and penetrates quickly and deeply therein, whereby oil, even under low pressure, is freed in good yield, and the moisture content of the material rises again to 8-9 per cent. It is now pressed under 25 atmospheres and 80 per cent. of the oil is obtained. The cake is broken, heated, and further pressed. Variations in this procedure have been lately introduced.

The author concludes with descriptions of various types of heating apparatus. These are usually duplex or in the larger works multi-stage with four to six units in series, fitted with efficient stirrers. Reference is made to a common difficulty hitherto met, namely, that the oil set free in the first stage or wetting operation may be largely re-absorbed in the second (drying); and to the alleged removal of this difficulty in the Skipin and Iljin processes.

Active Carbon

Survey of its Manufacture from Bituminous Coal

A STUDY of the manufacture of active carbon from bituminous coal is reported by Hargraves and McCulloch (*J. Inst. Fuel*, 1939, *12*, 67, 382-388). In preliminary experiments bituminous coal, sieved through a 90 I.M.M. sieve, was chlorinated for an extended period at a temperature of not more than 23.5° C., the coal being suspended in carbon tetrachloride. After an hour's treatment the coal was non-coking, but altogether 65 hours' heating was necessary to obtain a product entirely free of combustible organic matter, as shown by the absence of a luminosity in the flame of the burning coal, and of a deposit of carbon on the lid of the ignition crucible.

After filtering off, and then expelling the carbon tetrachloride by heating at 70° C., the coal powder was briquetted at 10 tons per sq. in., and heated in a tube furnace at 650° for two hours, till gas evolution ceased. A carbonisation temperature of 800° C. gave a product of highest adsorptive power for toluene and CCl_4. The adsorptive value was increased severalfold by steam activation, which was effected by breaking down the coke to a 6-10 I.M.M. sieve grading, and then leading over it in a tube furnace a stream of nitrogen saturated with steam. Temperature of treatment, between 900° and 1,000°, had little effect on the activity of the product, which was conditioned mainly by the extent of oxidation, a maximum activity being attained at an 85 per cent. weight loss.

Experiments on a slightly larger scale, and in which dry chlorination was resorted to, showed that the hardness and resistance to abrasion of the final product were increased in general by increasing time of exposure to chlorine, and that if the chlorination temperature was higher than 120°, the carbon had poor mechanical properties, and it was impossible to get a product of as high strength by dry as by wet chlorination. Briquetting results in a product of optimum hardness when it is done at a pressure of 4-5 tons per sq. in. Steam activation should be carried on to 55-60 per cent. weight loss to get a product of high activity and reasonable mechanical strength. Under these conditions the active carbon obtained may have as high an adsorptive capacity as 120 per cent. for CCl_4, as against 60-80 per cent. for a typical commercial high grade material.

IT is reported from Poland that during recent years considerable progress has been made in the production of essential oils with the result that producers of dill, pine, cumin, angelica, peppermint and calamus oils are now in a position to fill export orders for such products and are seeking foreign outlets. A new organisation which began operations in Warsaw in September, 1938, is scheduled to produce a long list of essentials which it will market both in Poland and abroad.

NEW TECHNIQUE IN PHYSICAL CHEMISTRY

Discussion at the Dundee Meeting of the British Association

THE Dundee meeting of the British Association opened on Wednesday evening with the inaugural general meeting in the Caird Hall, City Square, when Sir Albert Seward delivered the presidential address on "The Western Isles through the Mists of Ages." On Thursday the first of the meetings of the respective sections were held. In Section B (Chemistry) Professor E. K. Rideal delivered his presidential address on "Film Reactions as a New Approach to Biology" and this was followed by a joint discussion with Section I (Physiology) on "Tissue Respiration."

On Friday the Chemistry Section held a discussion on "New Technique in Physical Chemistry," which was introduced by Dr. H. W. Melville. The following are abstracts of the papers contributed to the discussion.

Abstracts of Contributed Papers

PROFESSOR S. SUGDEN.—*Radioactive indicators.*

The experimental methods used in preparing artificial radio-elements and in measuring their radioactivity are briefly reviewed and the properties which facilitate or hinder the use of a particular element are considered. The chemical applications include a discussion of (*a*) the detection of ionic compounds in which the exchange of radioactive atoms with inactive atoms takes place with a speed too high to be measured, and (*b*) the study of exchange reactions which involve the breaking of a covalent bond and proceed at a measurable speed.

PROFESSOR W. F. K. WYNNE-JONES.—*Isotopes as atom indicators for reactions in solution.*

It has always been of great interest to chemists to find out what happens to particular atoms when molecules undergo chemical change. Ordinary chemical analysis fails to solve this problem when there are several atoms of the same kind, and the numerous theories which have from time to time been advanced to explain the phenomena of chemical change have lacked experimental basis.

The possibility of obtaining isotopic forms of the common elements has afforded a means of experimental attack on this problem, and the isotopes of hydrogen, oxygen and nitrogen have all been used to examine the mechanism of chemical reactions.

The use of deuterium, the isotope of hydrogen, has made possible the study of labile hydrogen atoms and of acid-base catalysed changes. The mechanism of neutralisation, enolisation and mutarotation have all been studied and elucidated in this way.

The application of the other isotopes has already proved fruitful, and the interchange of oxygen atoms between molecules as well as the mechanism of hydrolysis of esters have been examined with success.

The scope of these studies is so wide that the development of separating and detecting isotopes has become a matter of great importance to all chemists.

Mechanisms of Free Atom Reactions

DR. M. RITCHIE.—Reactions of free atoms.

Many photochemical reactions involving molecular halogen proceed by way of atomic halogen. In the quantitative determination of reaction mechanism it is therefore of prime importance to know precisely how such atoms recombine. Indirect estimates have been made from reactions the mechanism of which has been fully established. Another method consists in measuring the decrease in extinction coefficient when molecular halogen is irradiated with light of known intensity. The third method consists in the measurement of the Budde Effect, that is, the pressure increase observed on irradiating halogen vapour. By further development of the technique it is now possible to deduce accurately the mechanism of the reaction and the magnitude of the velocity coefficients.

PROFESSOR T. ALTY.—*Accommodation coefficients.*

The paper discusses the recent work done on the measurement of accommodation coefficients, condensation coefficients, and evaporation coefficients. It gives a brief account of the methods of measurement of the coefficients, the results obtained, and the importance of these results for theories of the interaction of gas molecules with surfaces, the mechanism of crystal growth from the vapour, etc. The use of the accommodation coefficient method for the study of adsorption on metal surfaces and the measurement of heat of adsorption is described.

DR. H. W. MELVILLE.—*Recent technique in photochemistry.*

Gaseous photochemical reactions have mainly been investigated by examining what effect such factors as pressure, temperature and products have on the quantum yield of the reaction. Such an examination is often limited in its scope. In the present paper, therefore, an account is given of the development of a number of new methods such as multiple light sources, rotating sectors, etc., for obtaining new information about simple photochemical reactions. In particular the application of these methods to problems in the photochemistry of hydrides is discussed.

Soap Specifications

New German Regulations

IN furtherance of the stricter regulation of the soap industry, with a view to economy in the use of oils and fats, the German Industrial Oils and Fats Department issued a few weeks ago specifications for the different classes of soaps, together with rules as to marking and weights and fatty acid content. Details of these new rules have now been published in the *Chemiker Zeitung* of August 16. Soaps are divided into five classes: fine, toilet, textile, hard household, and soap powders, which are briefly defined.

The fine soaps have a fatty acid content of at least 72 per cent.; toilet soaps between 62 and 68 per cent.; textile soaps are those used for textile purposes; hard household soaps in bars or cakes, with a fatty acid content of 48-52 per cent., are those which cannot certainly be regarded as coming within the other classes; while soap powders are mixtures of powdered soda soaps with soda. Another division is into soaps which are sold under some special name or trade mark, with or without stipulation of minimum price, and those which are not so sold and are designated consumer soaps. In the former class this name or mark must appear on the soap or container, together with the weight (freshly made or undried). Soap powders must show the fatty acid content, in the following categories: under 5 per cent., 5-10, 10-15, 15-20, 20-25, 25-30, 30-35 per cent. Regulations as to weights and marking do not apply to trade-marked fine or toilet soaps. The fatty acid content may include resins and talloil. A table is included, giving (1) the minimum fatty acid content in grams of fine soaps, ranging in cake or bar weight from 50 to 175 grams (10 classes); (2) min. and max. f.a. content in grams for toilet soaps of the same ten classes; and (3) min. and max. f.a. content in grams of household soaps weighing in bars or cakes: 125, 200, 250, 375, 500 and 1,500 grams.

Recent Trade Literature

THE KESTNER EVAPORATOR AND ENGINEERING CO., LTD., have published a leaflet (No. 251) dealing with "Keebush" acid resisting constructional material. It is claimed that "Keebush" plant has practically unlimited life. Being non-metallic it is frequently used in cases where contamination by metals, catalytic influences, etc., are to be avoided. "Keebush" is made from specially developed synthetic resins with suitable fillers, highly resistant to corrosion.

The latest edition of the "Electromet Review" published by the ELECTRO METALLURGICAL CO., New York, refers to the importance of corrosion-resistant alloys in the process industries and mentions the recent utilisation of stainless steel in a huge rotary kiln and rotary cooler. The rotary kiln is over seven feet in diameter and forty-five feet long, and is constructed throughout of 25 per cent. chromium and 12 per cent. nickel stainless steel. The publication refers also to vacuum pans of stainless steel for handling dairy products.

The July number of the "Towers Messenger," published by J. W. TOWERS AND CO., LTD., deals with Victor oil damped balances which enable routine weighings to be made quickly and eliminate the use of weights smaller than one gramme. References are made also to the new Redwood inflammable vapour detector which, it is claimed, is capable of detecting many types of inflammable vapours in concentrations down to less than 0.05 per cent., compact mobile pumping units for vacuum or pressure, the "Pressovac" vacuum and pressure pump, fractional h.p. electric motors for general laboratory use and Whatman filter paper cups. The company has also issued a leaflet dealing with the Towers ultra-violet lamp for fluorescence analysis.

Solenoid-operated valves find a wide range of application in small-power engineering, and particularly in the refrigeration, heating and air-conditioning industry. Typical applications are for governing the flow of liquid refrigerants in cooling plants, gas or oil fuel and combustion air in boiler installations, and water or steam in humidifying plants at the dictate of a thermostat, pressure-'stat or humidistat or other automatic switch. THE BRITISH THERMOSTAT CO., LTD., have just issued a revised bulletin No. 351A describing standard "Teddington" magnetic valves for gas, water, steam and oil. Full specifications, with ratings, performance data and weights and dimensions in British and metric units are given of magnetic gas valves up to 2 in. diameter, and of water, steam and oil valves up to ½ in. diameter.

IMPERIAL CHEMICAL INDUSTRIES, LTD., have made a number of additions to their range of dyestuffs, details of which have been recently issued. Solacet Violet RS, which has been added to the Solacet range of water soluble dyestuffs for acetate rayon, provides shades ranging from pale heliotrope to deep purple, and special points of interest are its salt controlled exhaustion and penetrative properties. Soledon Jade Green BS Powder, a new and important addition to the range of Soledon dyestuffs, is suitable for the production of pale to medium strength bluish-green shades on a variety of textile materials. It is of particular interest for materials where application of insoluble vat dyestuffs by the normal reduction process would lead to difficulties due to inadequate penetration, uneven dyeing or the destruction of colour already present, i.e., for overdyed styles. Solochrome Brilliant Blue BS, the latest addition to the range of mordant dyestuffs, has better fastness to light than the established products, Solochrome Azurine BS and Solochrome Cyanine RS, and is suitable for application in circulating machines to the dyeing of loose wool and slubbing. I.C.I., Ltd., have published also a useful handbook of auxiliary products entitled "Auxiliary Products for the Paper Trade." This new publication is a useful summary of eleven auxiliary products of recent development which cover a remarkably wide range of functions and have proved themselves of value at various stages of paper manufacture and processing. The use of auxiliary products of this type has been rapidly growing during the last few years.

Cellulose Nitration

Avoiding the Use of Sulphuric Acid

A GOOD deal of modern research on the technique of cellulose nitration is directed towards avoiding the use of sulphuric acid in the nitration mixture owing to the difficulty of eliminating the last traces of the acid from the final product.

In France, Bouchonnet and his co-workers have obtained very stable nitro-cottons on replacing sulphuric acid in the mix by an organic acid or a mixture of an organic acid and its anhydride. The following are some typical nitration mixtures in this process:—

> Acetic acid, 25 per cent., nitric acid 75 per cent., propionic acid 10 per cent., nitric acid 90 per cent., butyric acid 16 per cent., nitric acid 84 per cent., acetic acid 25 per cent., acetic anhydride 25 per cent., nitric acid 50 per cent.

The cellulose is immersed in 100 parts of the mixed acids for 4½ hours at 30° C. (except in the case of the acetic anhydride mix, when the temperature must be kept at 12-16° C., owing to abundant formation of tetranitromethane at the higher temperature). The resulting trinitocellulose is purified by extracting with alcohol for ten hours. The products are reported to be stable to Tallani's test at 110°.

The method was developed with the object of preparing stable nitro-cottons with a nitrogen content of about 14 per cent., but could, no doubt, be modified to yield nitro-cottons of lower viscosities suitable for the lacquer and plastics industries.

The same workers have also studied the possibility of dispensing entirely with an auxiliary acid during nitration by carrying out the reaction in the vapour phase with pure nitric acid. This makes possible the continuous removal of the water during reaction, and also makes for economy in acid consumption. By operating in an aluminium plant under a nitric acid vapour pressure of 42 to 84 mm., nitro-cottons with nitrogen contents varying between 8.56 and 13.62 per cent. were obtained and exhibited satisfactory stability.

Japanese Chemical Industry

Emergency Measures Hamper Operation

THE Japanese chemical industry, according to the U.S. Department of Commerce, found operating under the emergency economic measures in effect since the Chinese war, increasingly difficult during the first six months of the current year. Certain branches of the industry were operating at full capacity in order to meet the increasing demand for chemicals from the munitions and other closely allied industries, but other branches operated under difficulties, owing to the restrictions placed on the supply of materials and labour to those enterprises not directly engaged in the production of military materials. These trends were indicated in the smaller production of important chemicals during the early months of the year, and in a drop in the employment indexes of certain branches of the industry. A definite trend toward greater official regulation of the industry through distribution and price control measures was also evident.

Chemical prices have risen steadily since the outbreak of hostilities in China with quotations for industrial chemicals in the first five months of 1939, being an average of 30 per cent. higher than quotations during the corresponding period of 1937, while fertiliser prices have shown a gain of approximately 22 per cent.

Imports of chemicals and allied products into Japan during the January-April period were valued at 35,398,000 yen, a sharp drop from imports during the corresponding periods of 1938 and 1937. The curtailment of imports has been made possible to some extent by the increased domestic output of certain chemicals, but primarily to the import restrictions on all items not urgently required for the munitions industries and others closely allied.

The Late Mr. H. J. Wrench

Tributes from Members of the Industry

THE CHEMICAL AGE has received many expressions of sympathy from members of the chemical industry regarding the death of Mr. H. J. Wrench, London representative of the journal. As reported in last week's issue, Mr. Wrench passed away on August 22 at the age of 45.

Mr. W. T. Colyer, of Carty and Son, Ltd., Mr. Alfred R. Jahn, of F. Jahn and Co., Mr. W. H. Feltham, of W. H. Feltham and Son, Mr. W. Turcan, of Thomas Tyrer and Co., Ltd., Mr. Norman Swindin, of Nordac, Ltd., Mr. W. L. Hill, of Leonard Hill, Ltd., Mr. L. A. Davies, of J. M. Steel and Co., Ltd., Mr. Bernard Stutfield, of Price, Stutfield and Co., Ltd., Mr. W. W. Veitch, of W. Rowlandson and Co., Mr. F. V. Wickham, of the Key Engineering Co., Ltd., Mr. S. J. Tungay, of Haughton's Metallic Co., Ltd., Mr. W. Lloyd Willey, of Thomas Hill-Jones, Ltd., Mr. Malcolm Dunbar, of L. Oertling, Ltd., Shawinigan, Ltd., and the Guelph Cask, Veneer and Plywood Co., Ltd., are among those who have sent messages of condolence.

The following are extracts from a few of the many tributes paid to Mr. Wrench :—

" I am sure he will be greatly missed not only by his colleagues, but by that wider circle of friends he made amongst the advertisers in THE CHEMICAL AGE. I always found it a pleasure to see Mr. Wrench whether business resulted or not and have no doubt this was the case with many others on whom he called."

" I was very grieved to learn of the death of Mr. Wrench and can quite appreciate what the loss of so charming a personality means."

" The writer has nothing but pleasurable recollections of the contact we had with him over a great number of years."

" I shall always remember him as a gentleman in the full sense of the word, with whom it was a pleasure to have a talk whenever he called on me."

" Mr. Wrench has called on me for a number of years now, and I always found him very keen in every way, a very good canvasser for yourselves, and one who would always see that advertisers received the attention and the service which they look for in these days."

" I shall always remember him for his genial disposition."

" He was very much liked by all here and we shall miss his visits very much."

Oxidation of Anthracite

The Effect on its Healing Values

The relation of heating value, volatile matter, and ash content for 1,008 samples of anthracite is presented graphically in a paper by G. S. Scott, G. W. Jones and H. M. Cooper in the current issue of *Industrial and Engineering Chemistry*.

Tests show that, when anthracite is oxidised with air at elevated temperatures its volatile matter content, oxygen content, and B.T.U. value, as determined by standard methods of coal analysis, change in a manner that indicates a direct relation at the various oxidation temperatures used, and that the relation holds, irrespective of the quality of the coal tested. The tests also show that the actual heating values of the oxidised samples, as determined by standard methods of analysis, deviate from the heating values of average unoxidised anthracite and that the deviation increases with an increase in the amount of oxidation of the samples.

These differences are large enough so that all anthracites oxidised at elevated temperatures (350° C. or less) in the laboratory can be quickly and positively detected by graphs. The relations given may be of value in determining whether different anthracites have oxidised as a result of spontaneous heating, and in determining the amount of weathering undergone by the finer sized anthracite during long storage periods.

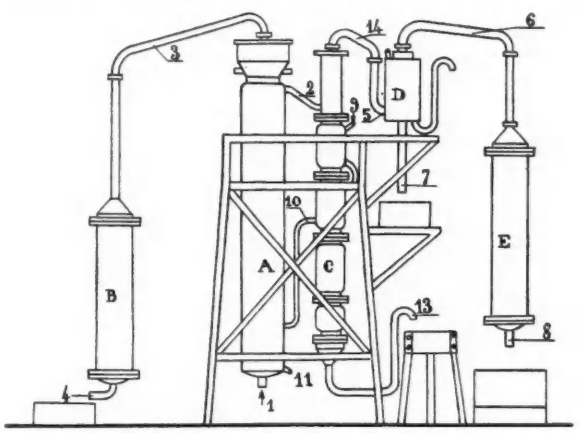
Distilling Pine Resin

An Improved Method

A PATENT for an improved method of distilling crude pine resins has been granted to the French Pine Institute. (F.P. 830,566.) It comprises notably the use of a system of pre-heating the resins to obtain very light turpentines, while the condenser is divided into two sections (one of special design) to divide the distillate into two fractions of different densities.

The preheating is accomplished in an apparatus resembling a tubular boiler (A). Steam circulates through the tubes of this apparatus, while crude resin, forced in at the bottom (1) fills the space around them. When the resin reaches the top of this boiler, it runs into a funnel which is connected by a tube (2) to an ordinary still. During this preheating operation, the lighter fractions of the turpentine are vapourised and rise into the top of the apparatus, from which they are carried by a tube (3) to a condenser (4). The density of this distillate is about 0.862.

In the ordinary still (C) the resin is further heated in the usual manner, the colophony being taken from the still at its



outlet (13). The vapours obtained during distillation escape from the top of the still and are carried by a pipe (14) to the special condenser (D). This consists of a large diameter sheet metal tube inside which a number of approximately horizontal baffleplates are placed. Around the tube are a series of truncated sheet metal projections, pierced with holes at their junction with the tube, a watertight casing being provided around the whole. Water is admitted into the topmost of the inverted truncated projections around the tube and runs down by the holes from one of the sections into another, being removed at the bottom by a tube which is bent to have its outlet above the top of the condenser so that the condenser will always be full of water.

The turpentine vapours are admitted to the condenser at the bottom of the tube and on contact with the sides of the tube they will be partly cooled and condensed, but this condensation will be regulatable, as the hot vapours will heat the water surrounding the condenser. By regulating the flow of water, and hence the temperature, the degree of condensation is determined. The condensate which has a density of between 0.875 and 0.880 runs down the baffle plates and into the bottom of the tube, from which it is taken by an outlet (7). The uncondensed vapours, on the other hand, leave the top of the condenser by a tube (6) to go to an ordinary condenser (E) where they are condensed and discharged at the outlet (8) as a liquid of a density of about 0.866 or 0.867.

In order to avoid overheating of the preheater (A), it is fed with the exhaust steam from the still. Steam is fed into the still at (9) and on leaving it, is carried by a pipe (10) to the preheater. This system permits continuous operation and fractionates the turpentine as it is being distilled.

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PERSONAL NOTES

MR. W. B. C. PERRYCOSTE, deputy manager of the British Aluminium Co., at Lochaber and Kinlochleven, has been appointed assistant technical manager at the company's head office in London.

* * * *

MR. W. GAVIN, C.B.E., agricultural adviser to Imperial Chemical Industries, Ltd., has been appointed agricultural adviser-designate to the Ministry of Agriculture and Fisheries. Mr. Gavin's appointment is a further development of the organisation which would be set up by the Government in the event of war to bring about an increase in food production in this country.

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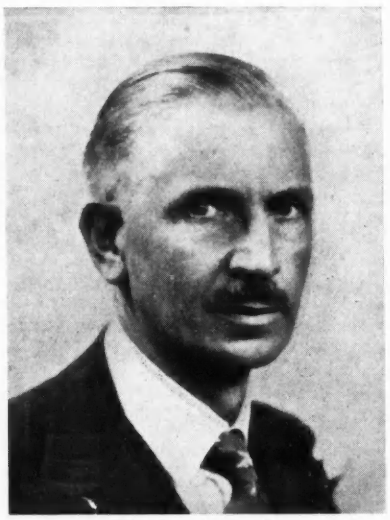
MR. A. KINGWELL has been transferred to B.E.N. Patents, Ltd.'s, new London depot at 92 Tottenham Court Road, as



Mr. A. Kingwell.

London area manager. Mr. Kingwell has had a wide experience in compressed air engineering covering over a quarter of a century.

* * * *

MR. A. E. COULTHURST, general sales manager and advertising manager of Parkinsons, Ltd., manufacturing chemists, of Burnley, has been appointed general manager for Australia and New Zealand for Fassett and Johnson, Ltd., London, distributors of proprietary medicines. He will take up the appointment on November 1. Mr. Coulthurst, who has had executive experience with J. C. Eno, Ltd., Nestlé Milk Products, Ltd., and Cooper, McDougall and Robertson, Ltd., joined Parkinsons, Ltd., in January, 1937.

OBITUARY

AT the moment of going to press we learn with the deepest regret of the death at Hove of MR. GEORGE EDWARD GILMAN, the esteemed Secretary of Benn Brothers. Ltd.

THE ACTION OF FILTER AIDS

A paper by P. C. Carman (*Ind. Eng. Chem.*, 1939, *31*, 1,047-1,050) shows quantitatively that, when kieselguhr is added as a filter aid to a filter cake consisting of rigid quartz particles, the resulting increase in permeability is due solely to the corresponding change in the porosity of the cake. The changes in resistance on adding different proportions of filter aid are similar to those observed on adding kieselguhr to compressible cakes and substantiate the theory that, in these cases too, the main function of the filter is to increase porosity. It follows that the most important property of a filter aid is its high porosity.

FROM WEEK TO WEEK

AS FROM November, a further increase of 2½ per cent. is to come into force on cotton-bleaching charges.

THE LLANELLY Associated Tinplate Co., Ltd., are proposing to introduce a continuous strip mill system to modernise their plant. The company operate five tinplate concerns in South Wales.

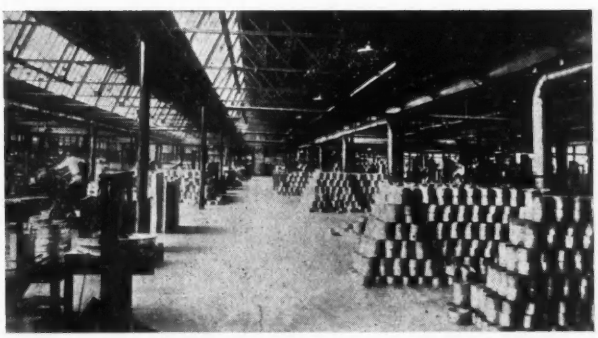
EXEMPTION FROM KEY INDUSTRY DUTY.—The Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting diethylamine from Key Industry Duty until December 31, 1940. Copies of the Treasury Order, which is entitled The Safeguarding of Industries (Exemption) No. 4 Order, 1939, may be obtained from H.M. Stationery Office.

A NOTICE issued from the Lord Privy Seal's office states that all commercial firms, or other occupiers of premises, which bear advertisement or other signs containing the name of the town or locality, of such a character and so situated as to be clearly visible from the air, should at once obliterate the word or words giving the name of the locality, and any other words which might give such information.

THE DEPARTMENT OF OVERSEAS TRADE announce that free passport visas will be given, in cases where a charge is normally made, to overseas buyers visiting the British Industries Fair, which opens in London and Birmingham on February 19, 1940. The visas will be valid for three months from the date of issue and the concession includes wives of buyers and their children under 18 years of age even if travelling with separate passports.

PROVIDED THAT CERTAIN PLANS are completed satisfactorily, work will shortly be resumed, it is reported, on the National Oil Refining Scheme at Alexandra Basin, North Wall, Dublin. The London and Thames Haven Oil Wharves, Ltd., conceived the construction scheme, and invested £1,166,000 with Parent Petroleum Interests, Ltd., who carried on this work until a few months ago, when it was discontinued, owing to difficulties arising. The scheme, which will take 13 months to complete, is to cost £1,500,000.

WITH REFERENCE to the report which appeared recently in THE CHEMICAL AGE of the Canadian Chemical Convention held in London, Ontario, the National Research Council, Canada, point out that there is an error in the statement that "the Dominion Government is setting up standards for immediate application in all Government business and has established a National Business Code." As a National Business Code has not been established the reference should have been to the National Building Code.



Williams (Birmingham), Ltd., have acquired the business of the London Aluminium Co., Ltd. It is understood that the two concerns will continue to be operated entirely separately. The photograph above shows a section of the works of the London Aluminium Co.

IN VIEW of the present state of emergency, it has been considered advisable to remove the more important records of the Institute of Fuel to a country district. Accommodation has, therefore, been obtained at a small private hotel, namely: Stangrave Hall, Godstone, Surrey. The affairs of the Institute are being conducted from there instead of from London until further notice. If possible, a telephone will be installed for the exclusive use of the Institute, but meantime there is one line serving the hotel for the general use of all residents. Telephone: Godstone, Surrey, 101.

A COURSE of lectures and practical work on the chemistry of oils and fats will be given by Dr. J. H. Skellon at the Chelsea Polytechnic on Friday evenings commencing September 29, 1939, until July, 1940. The course, which is based on the requirements of the examinations for the Fellowship of the Institute of Chemistry (special branches), will deal with the modern chemistry of oils and fats rather than the purely technological aspect.

A GENERAL DISCUSSION on "The Properties and Testing of Heat Insulating Materials," organised by the Joint Committee on Materials and their Testing, in conjunction with the Institution of Gas Engineers, will be held in London on November 23 next. The sub-divisions of the subject and the names of the authors who are contributing papers are as follows:—*High-temperature Insulating Material*: British Refractories Research Association (Great Britain) and Dr. J. B. Austin, United States Steel Corporation (United States); *Low-temperature Insulating Material*: Dr. Ezer Griffiths, F.R.S., National Physical Laboratory (Great Britain), and a paper from an authority in the United States; *Insulation of Buildings*: A. F. Dufton, Building Research Station (Great Britain) and Professor F. B. Rowley, University of Minnesota (United States); *Mechanical Engineering Applications of Insulation*: J. S. F. Gard, Washington Chemical Company (Great Britain) and Cope and Kinney, Detroit Edison Company (United States. In addition, Professor M. P. Brémond, of the Manufacture Nationale de Sèvres, France, will review the position of heat-insulating materials on the Continent, while Professor E. A. Allcut, of the University of Toronto, will deal with the subject from the Canadian point of view.

Foreign News

THE OUTPUT of sylvinite in France was 600,000 tons for the first half of this year.

COPPER OXYCHLORIDE for use in insecticidal preparations is now being produced by two French firms.

CANADIAN EXPORTS of cobalt salts and cobalt oxides advanced from 127,758 lb. during the first half of 1938, to 324,070 lb. for the six months ended June 30, this year.

EGYPTIAN crude glycerine output is increasing, it is reported. Export figures for the first ten months of 1938 were 136,577 kilogs against 130,301 kilogs for the same period in 1937. The chief buyers are Holland and Germany.

A ROYAL DECREE recently issued by the Belgian Government orders Belgian pharmacists to hold stocks of certain prescribed pharmaceutical products. The decree gives particulars as to actual materials and minimum quantities.

THE JAPANESE Ministry of Industries has drawn up a plan for rendering financial assistance to the acetylene chemical industry and more specifically for promoting the production of synthetic rubber, vinyl resins, acrylic resins and butyl acetate.

PLANS ARE UNDER CONSIDERATION for the erection of a factory on Walsh Island, near Newcastle, Australia, for the production of fish oil, and fish meal. The factory, which would produce 200 to 300 tons of fish meal per week, would receive financial help from the State.

EXPERIMENTS HAVE BEEN CARRIED OUT by Hungarian authorities in an endeavour to determine the degree of absorption of poisonous gases, notably mustard gas, by foodstuffs. Various foods were subjected to an atmosphere of the gas, including cereals, bread, meat, etc., and it was found that in no case did the gases penetrate into the interior of the foods, only the outer surface being affected.

TESTS HAVE BEEN CARRIED OUT in Germany which indicate a new use for the slag formed during the desulphurisation of iron by soda. It has been found that this slag can be used to produce soluble phosphates. It is mixed with an equal volume of natural rock phosphate, and heated in rotary ovens. It was found necessary to use ovens lined with dolomitic refractories to resist the temperatures reached and the reaction taking place.

THE I. G. FARBENINDUSTRIE in Patentanmeldungen I-58620 claim that it is possible to increase the resistance of luminous paints on a strontium sulphide base if 10 per cent. of anhydrous sodium carbonate is added to the sulphide. Preparation of the pigment is then carried out in exactly the usual manner. Paints made with this mixture have been found to resist the action of light and air to a much greater extent than those made with pure strontium sulphide. The action seems to be specific to sodium carbonate, as it could not be obtained by the addition of any other anhydride capable of fixing water of crystallisation.

THIS YEAR'S HUNGARIAN PEPPERMINT HARVEST is expected to yield 1,200 tons of fresh peppermint leaves.

THE STATE TOBACCO MONOPOLY of Jugoslavia has decided to establish a factory for nicotine extraction.

JAPANESE PRODUCTION OF ANILINE in 1938 underwent a marked expansion to 5,258 tons as compared with 3,693 tons in 1937.

EXPORTS of bone meal to India, during the first five months of 1939, showed a substantial increase over the figures for the corresponding period last year, totalling 17,892 tons, against 8,900 tons.

FROM SEPTEMBER 10 to 16 the annual meeting of the International Commission for the Study of Fats will be held in Berlin in conjunction with the meeting of the German Society for the Investigation of Fats.

THE SUITABILITY OF DIMETHYL ACETAL as an ingredient of petrol and aviation spirit is under investigation in Italy. It is manufactured from synthetic methyl alcohol and acetylene and readily blends with petrol.

BY A NEW Belgian Government decree it is intended to guard against the spread of the Colorado beetle by treatment not less than twice yearly of potato fields with lead arsenate or calcium arsenate or at least three times yearly with a contact poison such as rotenone.

WITH A VIEW to the establishment of methyl alcohol production on a firm basis, the French authorities have introduced a measure for its compulsory admixture with certain grades of petrol. The greater part of the production would be consumed in case of emergency by the explosives industry.

IMPROVED bituminous road-surfacing emulsions are said to be prepared with the aid of an emulsifying agent composed of a saponified mixture of stearic acid, oleic acid and a resin acid as described in French Pat. 833,170. A special feature of such emulsions is their stability at temperatures as low as -10° C.

THE FOLLOWING are among the fine chemicals, formerly carrying 15 per cent. duty *ad valorem*, which may now be imported into Sweden from all sources, duty free: Lithium citrate, calcium lactate, dimethyl sulphate, mandelic acid, sodamide, ethylene diamine, sulpho-salicylic acid, and sodium salicylate.

THE KIRIN SYNTHETIC PETROLEUM CO. has been founded in Hsinking (Manchukuo) with a capital of 100 million yuan to undertake the manufacture of synthetic petrol by the Noguichi process. Production is expected to commence towards the end of 1940 with an output of 300,000 tons petrol for which 1½ million tons of coal will be needed.

THE GUM tragacanth crop in Turkey during 1938 is stated to have been of excellent quality and in the neighbourhood of 200 metric tons. The amount available for export at the end of 1938 was estimated to have been 300 metric tons. In the first eleven months of 1938 a total of 183,184 kilogs. of gum tragacanth was exported from Turkey against 188,531 during the preceding year.

ACCORDING TO THE UNITED STATES BUREAU OF CENSUS the production of methanol in the United States during the first half of 1939 amounted to 2,140,301 gallons of crude and 13,487,041 gallons of synthetic compared to totals of 2,238,707 and 12,997,300 gallons respectively for the corresponding period in 1938. In the first half of 1937 the production of crude methanol totalled 3,113,048 gallons and of synthetic 12,512,763.

A REPORT from the office of the American Commercial Attache in Tokyo states that during recent months increasing attention has been given by Japanese chemical firms to the production of titanium dioxide. Restrictions in force on the distribution and use of zinc oxide by domestic paint manufacturers are responsible for this development. The Titanium Industrial Co. has recently completed a plant with a monthly capacity of 150 metric tons, a production rate which it expects to double in the near future.

LITHUANIA'S Government-controlled linseed, copra and sunflower oil refinery, the "Ringuva Akeine Bendrow," which recently lost its most important soap factory in the Memel Territory, has received permission to erect a soap factory at Kaunas. The refinery is Lithuania's largest supplier of soap fats and the new plant, construction on which will commence shortly, will at first produce ordinary laundry soaps, and soap powders, but later will undertake the manufacture of toilet soaps. In order to reduce importations of copra, it is stated that the new plant will utilise locally produced linseed oil instead of coconut oil.

Inventions in the Chemical Industry

The following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

Applications for Patents

SYNTHETIC RESINS, ETC.—Bakelite, Ltd. (United States, Aug. 18, '38.) 23451.

PROCESS FOR SEPARATING EMULSIONS.—M. Biazzi. (Germany, Aug. 15, '38.) 23493

METHACRYLATE RESIN EMULSIONS for leather finishes.—E. I. du Pont de Nemours and Co. (United States, Aug. 10, '38.) 23146.

LAKE PIGMENTS, ETC.—E. I. du Pont de Nemours and Co. (United States, Aug. 16, '38.) 23264.

PRODUCTION OF COLOUR RESISTS under aniline black.—Durand and Huguenin, A.-G. (Switzerland, Aug. 11, '38.) 23089.

PLASTIC MASSES.—Dynamit-A.-G., vorm A. Nobel and Co. (Germany, Aug. 15, '38.) 23436.

MANUFACTURE OF ORGANIC COMPOUNDS.—B. Gaspar. 23343.

PRODUCTION OF CUPROUS OXIDE.—A. R. Gibson. 23214.

PRODUCTION OF FAST DYEINGS.—W. W. Groves (I. G. Farbenindustrie). 23314.

MANUFACTURE OF MONO-AZO DYESTUFFS.—W. W. Groves (I. G. Farbenindustrie). 23386.

METHOD FOR PREPARING A COMBUSTIBLE PRODUCT from heavy hydrocarbons for a combustion motor.—J. B. van Heutsz and G. A. J. Te Luy. (Netherlands, June 30.) 23678. (Netherlands, July 31.) 23679.

PREPARATION OF ALKYLATED AROMATIC SULPHONIC ACIDS.—I. G. Farbenindustrie. (Germany, Aug. 18, '38.) 23075; (Germany, Dec. 27, '38.) 23076.

METHOD OF IMPROVING BORON CARBIDE containing graphite.—I. G. Farbenindustrie. (Germany, Aug. 24, '38.) 23091.

PRODUCTION OF AZO DYESTUFFS containing metal.—I. G. Farbenindustrie. (Germany, Aug. 19, '38.) 23407; (Germany, Dec. 12, '38.) 23408.

MANUFACTURE, ETC., OF UREA which is capable of being stored, etc. (Germany, Aug. 27, '38.) 23544.

MANUFACTURE OF POLYMERIC MATERIALS, ETC.—Imperial Chemical Industries, Ltd. (United States, Aug. 16, '38.) 23690.

PROCESSES FOR SEPARATING GASES or vapours from mixtures thereof.—Instituto por lo Studio Della Gomma Sintetica and G. Natta. (Italy, Aug. 12, '38.) 23137.

PLASTIC, ETC., COMPOSITIONS.—G. G. Jones, and Imperial Chemical Industries, Ltd. 23459.

PRODUCTION OF WATER-SOLUBLE DERIVATIVES of iso-alkylol amides.—J. Katz. (United States, Aug. 31, '38.) 23594.

PRODUCTION OF *a*-COUMARILYL and *a*-thionaphthenyayl-acetic acid esters.—J. D. Kendall, and R. B. Collins. 23263.

PRODUCTION OF ALIPHATIC-AROMATIC AMINES.—F. Kölz. (Germany, Aug. 16, '38.) 23427.

PREPARATION OF ALUMINIUM SULPHATE.—Montecatini Soc. Generale per l'Industria Mineraria e Chimica. (Italy, Aug. 12, '38.) 23107.

TUBULAR PLASTIC MATERIALS.—C. Nicolle. 23390.

PROCESS OF MAKING PHENOLPHTHALEIN.—A. R. J. Ramsey (Ex-Lax, Inc.). 23422.

UREA RESIN.—I. Rosenblum. (United States, Aug. 19, '38.) 23532.

PROCESSES, ETC., FOR THE REGENERATION OF A LIQUID, ETC.—A. G. Saheurs. (France, Sept. 22, '38.) 23183; (France, April 27.) 23184.

REGENERATION OF USED LUBRICATING OILS.—A. Schadegg. 23414.

MANUFACTURE OF AZO DYESTUFFS.—Soc. of Chemical Industry in Basle. (Switzerland, Aug. 16, '38.) 23196; (Switzerland, July 28.) 23197.

MANUFACTURE OF SILICEOUS BODIES.—A. H. Stevens (Garbisch). 23541.

TREATMENT OF HYDROCARBONS.—A. H. Stevens (Phillips Petroleum Co.). 23212.

CELLULOSE DERIVATIVE COMPOSITIONS.—W. J. Tennant (Dow Chemical Co.). 23231.

COMPOSITIONS OF MATTER for use as coating for surfaces of all kinds.—A. R. Trist. 23229.

ADHESIVES.—R. T. Vanderbilt Co., Inc. (United States, Aug. 13, '38.) 23421.

PAINTS, ETC.—A. Wacker Ges. für Elektrochemische Industrie Ges. (Germany, Aug. 13, '38.) 23316.

PREPARATION OF HORMONES.—B. P. H. Wiesner, R. Milton and Ward Blenkinsop and Co., Ltd. 23249.

ACYLATED CYCLOPENTADIENES, ETC.—Armour and Co. (United States, Sept. 2, '38.) 24069

Complete Specifications Open to Public Inspection

METHODS OF PRODUCING ALKYL COMPOUNDS OF LEAD.—Ethyl Gasoline Corporation. Feb. 16, 1938. 20395/38.

MANUFACTURE OF METHYL and ethyl lead compounds.—Ethyl Gasoline Corporation. Feb. 16, 1938. 20396/38.

TREATMENT OF HYDROCARBONS.—Texaco Development Corporation. Feb. 17, 1938. 2436/39.

PROCESS OF DYEING PELTS, hairs, or feathers.—I. G. Farbenindustrie. Feb. 18, 1938. 3631/39.

ODORIFEROUS SUBSTANCES.—I. G. Farbenindustrie. Feb. 19, 1938. 3632/39.

MANUFACTURE OF RESIN-LIKE CONDENSATION PRODUCTS.—I. G. Farbenindustrie. Feb. 19, 1938. 3633/39.

MANUFACTURE OF PARA-AMINOBENZALDEHYDES.—I. G. Farbenindustrie. Feb. 21, 1938. 3634/39.

OIL COMPOSITIONS.—Carbide and Carbon Chemicals Corporation. Feb. 18, 1938. 4232/39.

PROCESS FOR THE PRECIPITATION OF FINELY DISPERSED COLLOIDAL SUSPENSIONS.—Zettlitzer Kaolinwerke, A.-G. Feb. 18, 1938. 4403/39.

PROCESSES OF PREPARING OIL-SOLUBILISED DYES and the products resulting therefrom.—Armour and Co. Feb. 17, 1938. 4662/39.

PROCESS FOR REDUCING VEGETABLES containing starch to a dry powder.—Z. Volpertas. Feb. 17, 1938. 4664/39.

MANUFACTURE AND PRODUCTION OF MUSTARD OILS.—I. G. Farbenindustrie. Feb. 17, 1938. 4882/39.

PROCESS FOR THE PREPARATION OF TETRASULPHONATED PHTHALOCYANINE DYESTUFFS.—Montecatini Soc. Generale Per L'Industria Mineraria, E Chimica. Feb. 17, 1938. 5120/39.

PROCESS OF REFINING METALS OR ALLOYS by oxidising reactions with solid slag.—P. Girod. Feb. 16, 1938. (Cognate Applications, 5161/39, 5162/39, and 5163/39.) 5160/39.

MANUFACTURE OF ANTIMONY TRIOXIDE PIGMENTS.—I. G. Farbenindustrie. Feb. 16, 1938. (Cognate Application 5186/39.) 5185/39.

APPARATUS FOR THE UNIFORM DISPERSION OF FLOWING GAS MIXTURES, in particular those capable of reacting.—I. G. Farbenindustrie. Feb. 18, 1938. 5384/39.

MANUFACTURE OF COMPOSITIONS for the treatment of fibrous materials.—Chemical Works, formerly Sandoz. Feb. 18, 1938. 5393/39.

PROCESS FOR OBTAINING ALBUMINOID PRODUCTS, capable of being beaten and of being used for baking purposes, from milk.—Forschungsgemeinschaft Dr. Kremers Ges. Feb. 21, 1938. (Cognate Applications, 5539/39, 5540/39, 5541/39 and 5542/39.) 5538/39.

Specifications Accepted with Date of Application

PROCESS FOR THE MANUFACTURE OF ALLOYS OF SILICON.—Soc. D'Electrochimie, D'Electrometallurgie et des Acienies Electriques D'Ugine, and J. L. Andrieux. July 25, 1937. (Cognate Application, 20935/38.) 510,759.

RECOVERING AMMONIA and ammonia compounds from fuel gases. F. J. Collin, A.-G. Sept. 1, 1938. 511,101.

MANUFACTURE OF AMINO-HYDROXY CARBOXYLIC ACIDS of the diarylmethane series.—J. R. Geigy, A.-G. June 14, 1938. 511,102.

MANUFACTURE OF SUBSTANTIVE POLYAZO DYESTUFFS.—J. R. Geigy. Sept. 7, 1937. 511,103.

MAGNESIUM ALLOYS.—G. Von Giesche's Erben. Sept. 29, 1937. (Addition to 504,602.) 510,930.

METHOD OF SEPARATING PHENOLS from aqueous alkaline liquors containing same.—W. J. Tennant (Dow Chemical Co.). Oct. 24, 1938. 510,934.

METHOD AND APPARATUS FOR MAKING MULTICELLULAR GLASS.—Corning Glass Works. Nov. 5, 1937. 510,839.

METAL PASTE PIGMENTS.—Aluminium Co. of America. Nov. 11, 1937. 510,841.

MANUFACTURE OF MONOAZO DYESTUFFS.—J. R. Geigy Akt.-Ges. Nov. 13, 1937. 511,114.

PROCESS FOR THE MANUFACTURE OF 1-4-5-TETRA-AMINOANTHRAQUINONE.—Rhodiaceta Soc. Dec. 24, 1937. 510,936.

PROCESS FOR THE MANUFACTURE OF 1-4-5-8-tetra-amino-anthraquinone.—Soc. Rhodiaceta. Dec. 24, 1937. 510,936.

RECOVERY OF ORGANIC OXY-COMPOUNDS from their aqueous solutions containing one or more salts.—Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. Feb. 19, 1938. 511,130.

MANUFACTURE AND PRODUCTION OF NITRIC ACID ESTERS of monacyl glycerines.—I. G. Farbenindustrie. Feb. 10, 1938. 510,854.

METHOD OF MAKING SPONGE RUBBER.—International Latex Processes, Ltd. March 3, 1938. 510,859.

PRODUCTION OF COPPER free from oxygen and other gases.—Heraeus Vacuumschmelze A.-G. April 6, 1938. 510,861.

MANUFACTURE OF DERIVATIVES OF PHENANTHRIDINE.—Sir G. T. Morgan, and L. P. Walls. Jan. 13, 1938. (Cognate Application, 29037/38.) 511,353.

MANUFACTURE OF NITRO DYESTUFFS of the azine series.—A. Carpmael (I. G. Farbenindustrie.) Jan. 14, 1938. 511,193.

MANUFACTURE OF α-DIMETHYLAMINO-ACRYLIC ACID NITRILE.—W. W. Groves (I. G. Farbenindustrie.) Feb. 14, 1938. 511,430.

MANUFACTURE OF AZO-DYESTUFFS.—W. W. Groves (I. G. Farbenindustrie.) Feb. 15, 1938. 511,432.

MAGNESIUM ALLOYS.—Compagnie de Produits Chimiques et Electrometallurgiques Alais, Froges, et Camargue. Feb. 16, 1937. 511,291.

Weekly Prices of British Chemical Products

THERE has been a good deal of activity in the general chemical market this week with consumers seeking to add to their stocks of necessary raw materials. There has been a speeding-up in ex-contract deliveries, but spot orders of a substantial nature are difficult to negotiate. Here and there spot prices are somewhat erratic and in view of the general international situation current quotations must be regarded as nominal. A firmer tone has been noticed in the coal tar market, although most sections are content to mark-time until the outlook beomes clearer.

Price Changes

Rises: Copper Sulphate, Cresylic Acid, Pyridine.

MANCHESTER.—Trading conditions on the Manchester chemical market during the past week have been distinctly under the influence of the crisis. Whilst a good many traders emphasise that there has been little resembling the panicky conditions of last September there has been a noticeable increase in the volume of contract business covering deliveries over the next few months. This is generally regarded as a reasonable precautionary measure.

Up to the present effects on the price position of imported chemicals had not been pronounced, although, of course, the market undertone of these products is firmer and holders of stocks are not pressing sales.

General Chemicals

ACETONE.—£39 to £43 per ton, according to quantity.

ACETIC ACID.—Tech., 80%, £30 5s. per ton; pure 80%, £32 5s.; tech., 40%, £15 12s. 6d. to £18 12s. 6d.; tech., 60%, £23 10s. to £25 10s. MANCHESTER: 80%, commercial, £30 5s.; tech., glacial, £42 to £46.

ALUM.—Loose lump, £8 7s. 6d. per ton d/d; GLASGOW: Ground, £10 7s. 6d. per ton; lump, £9 17s. 6d.

ALUMINIUM SULPHATE.—£7 5s. 0d. per ton d/d Lancs.

AMMONIA, ANHYDROUS.—Spot, 1s. to 1s. 1d. per lb. d/d in cylinders.

AMMONIUM CARBONATE.—£20 per ton d/d in 5 cwt. casks.

AMMONIUM CHLORIDE (see Salammoniac).—Firsts, lump, spot, £42 17s. 6d. per ton; d/d address in barrels. Dog-tooth crystals, £35 per ton; fine white crystals, £18 per ton, in casks, ex store. GLASGOW: Large crystals, in casks, £37 10s.

AMMONIUM DICHROMATE.—9½d. per lb. d/d U.K.

ANTIMONY OXIDE.—£68 per ton.

ARSENIC.—Continental material £10 10s. per ton c.i.f., U.K. ports; Cornish White, £12 5s. to £12 10s. per ton f.o.r., mines, according to quantity. MANCHESTER: White powdered Cornish, £15 10s. per ton, ex store.

BARIUM CHLORIDE.—£11 10s. to £12 10s. per ton in casks ex store. GLASGOW: £12 per ton.

BLEACHING POWDER.—Spot, 35/37%, £9 5s. per ton in casks, special terms for contract. GLASGOW: £9 5s. per ton net ex store.

BORAX COMMERCIAL.—Granulated, £16 per ton; crystal, £17; powdered, £17 10s.; extra finely powdered, £18 10s., packed in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Granulated, £16 per ton in 1-cwt. bags, carriage paid.

BORIC ACID.—Commercial granulated, £28 10s. per ton; crystal, £29 10s.; powdered, £30 10s.; extra finely powdered, £32 10s. in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Crystals, £29 10s.; powdered, £30 10s. 1-cwt. bags in 1-ton lots.

CALCIUM BISULPHITE.—£6 10s. per ton f.o.r. London.

CALCIUM CHLORIDE.—GLASGOW: 70/75% solid, £5 12s. 6d. per ton ex store.

CHARCOAL, LUMP.—£6 to £6 10s. per ton, ex wharf. Granulated, £7 to £9 per ton according to grade and locality.

CHLORINE, LIQUID.—£18 15s. per ton, seller's tank wagons, carriage paid to buyer's sidings; £19 5s. per ton, d/d in 16/17 cwt. drums (3-drum lots); £19 10s. per ton d/d in 10-cwt. drums (4-drum lots); 4½d. per lb. d/d station in single 70-lb. cylinders.

CHROMETAN.—Crystals, 2½d. per lb.; liquor, £13 per ton d/d station in drums.

CHROMIC ACID.—9d. per lb., less 2½%; d/d U.K.

CHROMIC OXIDE.—11½d. per lb.; d/d U.K.

CITRIC ACID.—1s. 0½d. per lb. MANCHESTER: 1s. 0½d. GLASGOW: B.P. crystals, 1s. 0½d. per lb; less 5%, ex store.

COPPER SULPHATE.—£18 5s. per ton, less 2% in bags. MANCHESTER: £19 per ton f.o.b. GLASGOW: £19 10s. per ton, less 5%, Liverpool in casks.

CREAM OF TARTAR.—100%, £4 12s. per cwt., less 2½%. GLASGOW: 99%, £4 12s. per cwt. in 5-cwt. casks.

FORMALDEHYDE.—£20-£22 per ton.

FORMIC ACID.—85%, in carboys, ton lots, £42 to £47 per ton.

GLYCERINE.—Chemically pure, double distilled, 1,260 s.g., in tins, £3 10s. to £4 10s. per cwt. according to quantity; in drums, £3 2s. 6d. to £3 16s. 0d. Refined pale straw industrial, 5s. per cwt. less than chemically pure.

HYDROCHLORIC ACID.—Spot, 5s. 6d. to 8s. carboy d/d according to purity, strength and locality.

IODINE.—Resublimed B.P., 6s. 9d. per lb. in 7 lb. lots.

LACTIC ACID.—(Not less than ton lots). Dark tech., 50% by vol., £24 10s. per ton; 50% by weight, £28 10s.; 80% by weight, £50; pale tech., 50% by vol., £28; 50% by weight, £33; 80% by weight, £55; edible, 50%, by vol., £41. One ton lots ex works, barrels free.

LEAD ACETATE.—LONDON: White, £31 10s. ton lots; brown, £35. MANCHESTER: White, £31; brown, £30. GLASGOW: White crystals, £30; brown, £1 per ton less.

LEAD NITRATE.—£27 per ton for 1-ton lots.

LEAD, RED.—£31 15s. 0d. 10 cwt. to 1 ton, less 2½% carriage paid. GLASGOW: £31 per ton, less 2½% carriage paid for 2-ton lots.

LITHARGE.—GLASGOW: Ground, £31 per ton, less 2½%, carriage paid for 2-ton lots.

MAGNESITE.—Calcined, in bags, ex works, about £8 per ton.

MAGNESIUM CHLORIDE.—Solid (ex wharf) £5 10s. per ton. GLASGOW: £7 5s. per ton.

MAGNESIUM SULPHATE.—Commercial, £5 10s. per ton, ex wharf.

MERCURY PRODUCTS.—Ammoniated B.P. (white precip.), lump, 6s. 5d. per lb.; powder B.P., 6s. 7d.; bichloride B.P. (corros. sub.), 5s. 8d.; powder B.P., 5s. 1d.; chloride B.P. (calomel), 6s. 2d.; red oxide cryst. (red precip.), 7s. 6d.; levig, 6s. 9d.; yellow oxide B.P. 6s. 10d.; persulphate white B.P.C., 6s. 7d.; sulphide black (hyd. sulph. cum. sulph. 50%), 6s. 6d. For quantities under 112 lb., 1d. extra; under 28 lb.. 5d. extra.

METHYLATED SPIRIT.—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities.

NITRIC ACID.—Spot, £25 to £30 per ton according to strength, quantity and destination.

OXALIC ACID.—£48 15s. to £57 10s. per ton, according to packages and position. MANCHESTER: £49 to £55 per ton ex store. GLASGOW: £2 9s. per cwt. in casks.

PARAFFIN WAX.—GLASGOW: 3¾d. per lb.

POTASH, CAUSTIC.—Solid, £33 5s. to £38 per ton according to quantity, ex store; broken, £40 per ton. MANCHESTER: £38.

POTASSIUM CHLORATE.—£36 7s. 6d. per ton. MANCHESTER: £37 per ton. GLASGOW: 4½d. per lb.

POTASSIUM DICHROMATE.—5½d. per lb carriage paid. GLASGOW: 5½d. per lb., net, carriage paid.

POTASSIUM CHROMATE.—9d. per lb. d/d U.K.

POTASSIUM IODIDE.—B.P. 6s. 3d. per lb. in 7 lb. lots.

POTASSIUM NITRATE.—Small granular crystals, £24 to £27 per ton ex store, according to quantity.

POTASSIUM PERMANGANATE.—LONDON: 9½d to 10½d. per lb. MANCHESTER: B.P. 9½d. to 11½d. GLASGOW: B.P. Crystals, 10½d.

POTASSIUM PRUSSIATE.—6d. to 6½d. per lb. MANCHESTER: Yellow, 6d. to 6½d.

PRUSSIATE OF POTASH CRYSTALS.—In casks, 6¾d. per lb. net, ex store.

SALT CAKE.—Unground, spot, £3 8s. 6d. per ton.

SODA ASH.—Light 98/100%, £5 17s. 6d. per ton f.o.r. in bags.

SODA, CAUSTIC.—Solid, 76/77° spot, £13 10s. per ton d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£19-£20 per ton carriage paid North. GLASGOW: £18 10s. per ton net ex store.

SODIUM BICARBONATE.—Refined spot, £10 10s. per ton d/d station in bags in 1-ton lots. MANCHESTER: £10 15s. GLASGOW: £13 5s. per ton in 1 cwt. kegs, £11 5s. per ton in 2-cwt. bags.

SODIUM BISULPHITE POWDER.—60/62%, £12 10s. to £14 per ton d/d in 2-ton lots for home trade.

SODIUM CARBONATE MONOHYDRATE.—£20 per ton d/d in minimum ton lots in 2 cwt. free bags.
SODIUM CHLORATE.—£27 10s. to £32 per ton. GLASGOW: £1 11s. per cwt., minimum 3 cwt. lots.
SODIUM DICHROMATE.—Crystals cake and powder 4¼d. per lb. net d/d U.K. with rebates for contracts. GLASGOW: 4¼d. per lb., carriage paid.
SODIUM CHROMATE.—4¼d. per lb. d/d U.K.
SODIUM HYPOSULPHITE.—Pea crystals, £15 5s. per ton for 2-ton lots; commercial, £11 5s. per ton. MANCHESTER: Commercial, £11; photographic, £15 10s.
SODIUM METASILICATE.—£14 5s. per ton, d/d U.K. in cwt. bags.
SODIUM NITRATE.—Refined, £8 5s. per ton for 6-ton lots d/d. GLASGOW: £1 12s. per cwt. in 1-cwt. kegs, net, ex store.
SODIUM NITRITE.—£18 5s. per ton for ton lots.
SODIUM PERBORATE.—10%, £4 per cwt. d/d in 1-cwt. drums.
SODIUM PHOSPHATE.—Di-sodium, £12 per ton delivered for ton lots. Tri-sodium, £16 10s. per ton delivered per ton lots.
SODIUM PRUSSIATE.—4d. per lb. for ton lots. MANCHESTER: 4¼d. to 5d. GLASGOW: 4d.
SODIUM SILICATE.—£8 2s. 6d. per ton.
SODIUM SULPHATE (GLAUBER SALTS).—£3 per ton d/d.
SODIUM SULPHATE (SALT CAKE).—Unground spot, £3 to £3 10s. per ton d/d station in bulk. MANCHESTER: £3 10s.
SODIUM SULPHIDE.—Solid 60/62%, Spot, £11 15s. per ton d/d in drums; crystals, 30/32%, £9 per ton d/d in casks. MANCHESTER: Concentrated solid, 60/62%, £11; commercial, £8 10s.
SODIUM SULPHITE.—Pea crystals, spot, £14 10s. per ton d/d station in kegs.
SULPHUR PRECIP.—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.
SULPHURIC ACID.—168° Tw., £4 11s. to £5 1s. per ton; 140° Tw., arsenic-free, £3 to £3 10s.; 140° Tw., arsenious, £2 10s.
TARTARIC ACID.— 1s. 1¼d. per lb. less 5%, carriage paid for lots of 5 cwt. and upwards. MANCHESTER: 1s. 1¼d. per lb. GLASGOW: 1s. 1¼d. per lb., 5%, ex store.
ZINC SULPHATE.—Tech., £11 10s. f.o.r., in 2-cwt. bags.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 7½d. to 1s. 2½d. per lb., according to quality. Crimson, 1s. 6½d. to 1s. 8d. per lb.
ARSENIC SULPHIDE.—Yellow, 1s. 5d. to 1s. 7d. per lb.
BARYTES.—£6 to £6 10s. per ton, according to quality.
CADMIUM SULPHIDE.—2s. 11d. to 3s. 2d. per lb.
CARBON BLACK.—3⅜d. to 4 1/16d. per lb., ex store.
CARBON DISULPHIDE.—£31 to £33 per ton, according to quantity, drums extra.
CARBON TETRACHLORIDE.—£41 to £46 per ton, according to quantity, drums extra.
CHROMIUM OXIDE.—Green, 11½d. per lb.
DIPHENYLGUANIDINE.—2s. 2d. per lb.
INDIA-RUBBER SUBSTITUTES.—White, 4½d. to 5d. per lb.; dark 3⅝d. to 4⅜d. per lb.
LAMP BLACK.—£24 to £26 per ton del., according to quantity. Vegetable black, £35 per ton upwards.
LEAD HYPOSULPHITE.—9d. per lb.
LITHOPONE.—Spot, 30%, £16 10s. per ton, 2-ton lots d/d in bags.
SULPHUR.—£9 to £9 5s. per ton. SULPHUR PRECIP. B.P., £55 to £60 per ton. SULPHUR PRECIP. COMM., £50 to £55 per ton.
SULPHUR CHLORIDE.—5d. to 7d. per lb., according to quantity.
VERMILION.—Pale, or deep, 5s. per lb., 1-cwt. lots.
ZINC SULPHIDE.—£58 to £60 per ton in casks ex store, smaller quantities up to 1s. per lb.

Nitrogen Fertilisers

AMMONIUM SULPHATE.—The following prices have been announced for neutral quality basis 20.6% nitrogen, in 6-ton lots delivered farmer's nearest station up to June 30, 1940; September, £7 5s.; October, £7 6s. 6d.; November, £7 8s.; December, £7 9s. 6d.; January, 1940; £7 11s., February £7 12s. 6d.; March/June, £7 14s.

CALCIUM CYANAMIDE.—The following prices are for delivery in 5-ton lots, carriage paid to any railway station in Great Britain up to June 30, 1940; September £8 2s. 6d.; October £8 3s. 9d.; November £8 5s.; December, £8 6s. 3d.; January, 1940, £8 7s. 6d.; February £8 8s. 9d.; March £8 10s.; April/June, £8 11s. 3d.

NITRO-CHALK.—£7 10s. 6d. per ton up to June 30, 1940.

SODIUM NITRATE.—£8 5s. per ton for delivery up to June 30, 1940.

CONCENTRATED COMPLETE FERTILISERS.—£11 4s. to £11 13s. per ton in 6-ton lots to farmer's nearest station.

AMMONIUM PHOSPHATE FERTILISERS.—£10 19s. 6d. to £14 16s. 6d. per ton in 6-ton lots to farmer's nearest station.

Coal Tar Products

BENZOL.—At works, crude, 9½d. to 10d. per gal.; standard motor, 1s. 3½d. to 1s. 4d.; 90%, 1s. 4½d. to 1s. 5d., pure 1s. 8½d. to 1s. 9. MANCHESTER: Crude, 1s. 0½d. to 1s. 0½d. per gal.; pure, 1s. 8d. to 1s. 8½d. per gal.; motor grade 1s. 6½d.

CARBOLIC ACID.—Crystals, 6⅝d. to 7⅛d. per lb., small quantities would be dearer; Crude, 60's 1s. 7d. to 1s. 10d.; dehydrated, 1s. 9d. to 2s. per gal., according to specification; Pale, 99/100%, per lb. f.o.b. in drums; crude, 2s. 1d. per gal.
CREOSOTE.—Home trade, 3¾d. to 4d. per gal., f.o.r., makers' works; exports 6d. to 6¼d. per gal., according to grade. MANCHESTER: 3¼d. to 4¼d.
CRESYLIC ACID.—97/99%, 1s. 5d. to 1s. 8d.; 99/100%, 2s. to 2s. 6d. per gal., according to specification. MANCHESTER: Pale, 99/100%, 1s. 9d.
NAPHTHA.—Solvent, 90/160, 1s. 6d. to 1s. 7d. per gal.; solvent, 95/160%, 1s. 7d. to 1s. 8d., naked at works; heavy 90/190%, 1s. 1¼d. to 1s. 3d. per gal., naked at works, according to quantity. MANCHESTER: 90/160%, 1s. 5d. to 1s. 7d. per gal.
NAPTHALENE.—Crude, whizzed or hot pressed, £6 to £6 10s. per ton; purified crystals, £9 per ton in 2-cwt. bags. LONDON: Fire lighter quality, £3 to £4 10s. per ton. MANCHESTER: Refined, £10 10s. to £11 10s. 0d. per ton f.o.b.
PITCH.—Medium, soft, 26s. per ton, f.o.b. MANCHESTER: 24s. f.o.b., East Coast.
PYRIDINE.—90/140%, 14s. 6d. to 15s. per gal.; 90/160%, 11s. 3d. to 11s. 9d. per gal.; 90/180%, 3s. to 4s. per gal. f.o.b. MANCHESTER: 11s. to 14s. per gallon.
TOLUOL.—90%, 2s. 1d. to 2s. 2d. per gal.; pure 2s. 6d. to 2s. 7d. MANCHESTER: Pure, 2s. 5d. per gallon, naked.
XYLOL.—Commercial, 2s. 3d. per gal.; pure, 2s. 5d. MANCHESTER: 2s. 4d. per gallon.

Wood Distillation Products

CALCIUM ACETATE.—Brown, £6 15s. to £9 5s. per ton; grey, £8 to £8 5s. MANCHESTER: Brown, £8; grey, £9 10s.
METHYL ACETONE.—40.50%, £32 to £35 per ton.
WOOD CREOSOTE.—Unrefined, 6d. to 8d. per gal., according to boiling range.
WOOD NAPHTHA, MISCIBLE.— 2s. 8d. to 3s. per gal;. solvent, 3s. to 3s. 5d. per gal.
WOOD TAR.—£3 to £8 per ton, according to quality.

Intermediates and Dyes

ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—1s. 10d. per lb., for cwt. lots, net packages.
BENZIDINE, HCl.—2s. 7½d. per lb., 100% as base, in casks.
BENZOIC ACID, 1914 B.P. (ex toluol).—1s. 11d. per lb. d/d buyer's works.
m-CRESOL 98/100%.—1s. 8d. to 1s. 9d. per lb. in ton lots.
o-CRESOL 30/31° C.—6½d. to 7½d. per lb. in 1-ton lots.
p-CRESOL 34/35° C.— 1s. 7d. to 1s. 8d. per lb. in ton lots.
DICHLORANILINE.—2s. 1½d. to 2s 5½d. per lb.
DIMETHYLANILINE.—Spot, 1s. 7½d. per lb., package extra.
DINITROBENZENE.—7½d. per lb.
DINITROCHLORBENZENE, SOLID.—£79 5s. per ton.
DINITROTOLUENE.—48/50° C., 8½d. per lb.; 66/68° C., 11d.
DIPHENYLAMINE.—Spot, 2s. 3d. per lb.; d/d buyer's works.
GAMMA ACID, Spot, 4s. 4½d. per lb. 100%, d/d buyer's works.
H ACID.—Spot, 2s. 7d. per lb.; 100%, d/d buyer's works.
NAPHTHIONIC ACID.—1s. 10d. per lb.
β-NAPHTHOL.—£97 per ton; flake, £94 8s. per ton.
α-NAPHTHYLAMINE.—Lumps, 1s. 1d. per lb.
β-NAPHTHYLAMINE.—Spot, 3s. per lb.; d/d buyer's works.
NEVILLE AND WINTHER'S ACID.—Spot, 3s. 3½d. per lb. 100%.
o-NITRANILINE.—4s. 3½d. per lb.
m-NITRANILINE.—Spot, 2s. 10d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 10d. to 1s. 11d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 4½d. to 5d. per lb., in 90-gal. drums, drums extra, 1-ton lots d/d buyer's works.
NITRONAPHTHALENE.—9½d. per lb.; P.G., 1s. 0½d. per lb.
SODIUM NAPHTHIONATE.—Spot, 1s. 11d. per lb.; 100% d/d buyer's works.
SULPHANILIC ACID.—Spot, 8¾d. per lb. 100%, d/d buyer's works.
o-TOLUIDINE.—10½d. per lb., in 8/10 cwt. drums, drums extra.
p-TOLUIDINE.—1s. 10½d. per lb., in casks.
m-XYLIDINE ACETATE.—4s. 3d. per lb., 100%.

Latest Oil Prices

LONDON, Aug. 30.—LINSEED OIL.—Spot, £32 5s. per ton (small quantities); Sept., £29 15s.; Oct.-Dec., £26; Jan.-April, £25 10s., naked. SOYA BEAN OIL.—Oriental, Aug.-Sept. shipment, c.i.f. (bulk), £19 5s. per ton. RAPE OIL.—Crude, extracted, £31 10s. per ton; technical refined, £32 15s., naked, ex wharf. COTTON OIL.—Egyptian crude, £18 10s. per ton, naked, ex mill (small lots, £1 10s. extra). TURPENTINE was not offered.

HULL.—LINSEED OIL, spot, £30 10s. per ton; forward positions not quoted. CASTOR OIL, pharmaceutical, spot, 41s.; first, 36s. per cwt. RAPE OIL, extracted, spot, £32 10s.; refined, £33 10s. per ton. TURPENTINE, American, spot, 54s. per cwt. Soya oil, palm kernel oil, cod oil, and Egyptian cotton oil not quoted.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.)

CHARLES CREDLAND, LTD., Sheffield, paint manufacturers. (M., 2/9/39.) August 16, by order on terms, £1,700 mort. (sec. 81, 1929 Act), dated Dec. 12, 1933, to F. E. Thew, Alnmouth; charged on 6 and 8 Maybell Avenue, Blackpool. * £6,335. Jan 4, 1939.

DARWINS, LTD., Sheffield, steel manufacturers. (M., 2/9/39.) Aug. 10, debenture to District Bank, Ltd., securing all moneys due or to become due to the Bank; general charge. *£200,000. June 29, 1938.

H. A. SMITH, LTD., Braunston, near Rugby, manufacturing chemists. Aug. 18, charge, to Barclays Bank, Ltd., securing all moneys due or to become due to the Bank; charged on land and cottages, etc., together with site of factory at High Street, Braunston. * Nil. April 5, 1938.

"ZAN," LTD., Sandbach, manufacturers of phosphoric acid powder. (M., 2/9/39.) Aug. 17, mortgage and charge, to Midland Bank, Ltd., securing all moneys due or to become due to the Bank; charged on Oakdene, Oak Street, Llangollen, also general charge. * £11,982. April 13, 1939.

Satisfactions

CELLULOSE REFINISHERS, LTD., Birmingham. (S., 2/9/39.) Satisfaction August 23, £250, registered Feb. 17, 1934.

LEVER BROTHERS AND UNILEVER, LTD., Port Sunlight. (S., 2/9/39.) Satisfactions August 18, of debenture stock registered May 4, and November 1, 1932, to the extent of £68,800 and £45,763 respectively.

Receivers Ceasing to Act

RAINFORD TAR PRODUCTS, LTD., London, W.C. (R.C.T.A., 2/9/39.) J. J. Baker. August 19.

THOMPSON, L'HOSPIED AND CO., LTD., Stourbridge, chemical manufacturers, etc. (R.C.T.A., 2/9/39.) Kathleen E. Thompson. August 21.

Company News

The Boots Pure Drug Co., Ltd., are again maintaining their quarterly dividend at 6 per cent., less tax, payable on September 30.

United Indigo and Chemical Co. report a profit for the year to June 30, of £4,368 (£2,864). After allowing for preference dividend, £14,598 is carried forward, against £14,729.

The Staveley Coal and Iron Co., Ltd., is reducing its distribution for the year to the end of June by one per cent. to 10 per cent., tax free. The final dividend is at the rate of 7½ per cent. against 8 per cent.

The Triplex Safety Glass Co., Ltd., report a rise in trading profits from £167,789 to £192,604 for the year to June 30. After providing £18,000 more at £58,000 for income tax and N.D.C., and allowing for staff fund, net profits work out at £92,021, compared with £112,590.

Chemical Trade Inquiries

The following trade inquiries are abstracted from the "Board of Trade Journal." Names and addresses may be obtained from the Department of Overseas Trade (Development and Intelligence), 35 Old Queen Street, London, S.W.1 (quote reference number).

Belgium.—A firm of agents at Brussels wishes to obtain the representation for Belgium of United Kingdom manufacturers of industrial chemicals, antiseptics, scaling products, etc. They would work on a commission basis unless special arrangements are made. (Ref. No. 691.)

Egypt.—The Egyptian Ministry of Commerce and Industry is calling for tenders for the supply and delivery of quantities of chemical balances and weights. Tenders should be addressed to the Controller, Assay, Weights and Measures Department, El Azhar, P.O., Cairo by whom they will be received up to noon on October 2, 1939. (Ref. T. 26402/39.)

New Companies Registered

Coal, Coke Ovens & By-Products, Consultants, Ltd., 354,921, private company. Capital: £1,000 in 1,000 shares of £1 each. To carry on the business of consulting and constructional engineers, technical experts and advisers on (1) colliery and all matters analogous thereto, (2) production of coal and (3) all matters appertaining to the carbonising and gas production industries, etc. Subscribers: Colin S. Field, 3 Parkway, Dorking, Surrey: W. Davidson. Registered office: 8 Laurence Pountney Hill, E.C.4.

Chemical and Allied Stocks and Shares

THE continued absence of heavy selling pressure assisted the undertone in the stock and share markets, and despite moderate fluctuations in sympathy with the alternating hopes and fears attaching to the outcome of the European crisis, movements in many industrial shares have been in favour of holders. There was, however, only an extremely small amount of business in evidence, and, apart from the widely held and usually active shares, quotations were not tested this week.

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A number of securities of chemical and kindred companies were better on balance and some buying was in evidence for shares of concerns which are considered in some quarters to have reasonable prospects of achieving satisfactory results even should war conditions develop. Imperial Chemical, which continued to be assisted by hopes that the interim dividend may be maintained, improved from 28s. 9d. to 30s. 4½d. On the other hand, the company's preference units declined to 26s. 6d. in sympathy with the majority of fixed interest securities, which have been affected by the higher Bank Rate and the lower level of Gilt-edged stocks. Fison Packard were maintained around 40s. 9d., but B. Laporte have been marked down from 60s. to 57s. 6d. Metal Box were steady, and at 74s. 4½d. have been well maintained on balance, as have British Match, which at 34s. 9d. were the same as a week ago. British Oxygen, Murex and Lever and Unilever showed moderate improvement, while British Aluminium rallied from 55s. to 56s. 3d.

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Distillers recovered from the sharp decline shown last week and changed hands around 96s. 6d. The price still carries the scrip bonus declared some weeks back. Borax Consolidated were better at 20s. 7½d., and, following an earlier decline, Imperial Smelting rallied to 9s. awaiting the forthcoming decision as to a dividend on the company's preference shares. Amalgamated Metal ordinary made a slightly better price, and Triplex Glass showed recovery from 31s. 3d. to 32s. 6d. United Glass Bottle were lower at 47s. 6d., but were rather more active this week. United Molasses fluctuated, but on balance showed a rally from 23s. to 24s. 3d. British Glues were 3d. lower at 4s. 9d. Associated Cement made the slightly higher price of 66s. 3d., and, after declining further, British Plaster Board became firmer at 27s. 3d. Tunnel Cement were 6d. better at 37s. 6d.

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Towards the middle of the week iron and steel shares attracted a small amount of attention, and on balance Stewarts and Lloyds have moved up from 41s. 9d. to 42s. 1½d., while Guest Keen were 24s. compared with 23s. 9d. Stavely Coal and Iron were steadier, but Tube Investments at 85s. showed a loss of 2s. on the week. Richard Thomas shares and debentures were little changed, pending the annual meeting which is expected to confirm the belief that the company's earnings are running at an improved level in the current year. Paint shares were relatively steady and Pinchin Johnson were around 21s. 9d. On the other hand, Cellon were 6d. lower at 15s., and Wall Paper deferred units were marked down to 21s. 3d. Barry and Staines were 29s., and Michael Nairn 54s. 4½d., while Dunlop Rubber ordinary units improved to 26s. 9d. following an earlier reaction. British Oil and Cake Mills preferred at 39s. 3d. were within a few pence of the price current a week ago. Blythe Colour Works remained at 7s. 6d., and Monsanto Chemicals 5½ per cent. preference were 21s. 3d., but prices did not appear to be tested by business.

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Sangers were 6s. down at 19s. 6d. and Timothy Whites and Taylors reacted from 21s. 6d. to 20s. 6d., while Beecham's Pills deferred were moderately lower at 7s. 4½d. Boots Pure Drug were 40s., which compares with 41s. 9d. a week ago. Oil shares improved towards the middle of the week and some buying of Trinidad Petroleum Development and Trinidad Leaseholds was reported.